

THE
BEAUTIES OF SCENERY
A GEOGRAPHICAL SURVEY

BOOKS RELATING TO SCENERY BY THE SAME AUTHOR

Waves of the Sea and Other Water Waves
(Fisher Unwin, 1910)

The Travels of Ellen Cornish
(Ham-Smith, 1913)

Waves of Sand and Snow
(Fisher Unwin, 1913)

National Parks
(Sifton Praed, 1930)

The Poetic Impression of Natural Scenery
(Sifton Praed, 1931)

The Scenery of England
(C.P.R.E., 1932, and Second Edition, A. and C. Black, 1937)

Ocean Waves and Kindred Geophysical Phenomena
(Cambridge Univ. Press, 1934)

Scenery and the Sense of Sight
(Cambridge Univ. Press, 1935)

The Preservation of our Scenery
(Cambridge Univ. Press, 1937)

The Scenery of Sidmouth
(Cambridge Univ. Press, 1940)

Historic Thorn Trees in the British Isles
(Country Life, 1941)

The Beauties of Scenery

A GEOGRAPHICAL SURVEY

by

VAUGHAN CORNISH, D.Sc.

With an Introduction by

F. J. OSBORN

LONDON

Frederick Muller Ltd

29 GREAT JAMES STREET

W.C.1

FIRST PUBLISHED BY FREDERICK MULLER LTD.
IN DECEMBER 1943
PRINTED IN GREAT BRITAIN BY
THE CAMELOT PRESS LTD.
LONDON AND SOUTHAMPTON



Second Edition January 1944

Third Edition June 1944

Fourth Edition March 1946

TO
ALEXANDER FARQUHARSON
OF THE
INSTITUTE OF SOCIOLOGY
WITH ESTEEM AND REGARD
I DEDICATE THIS BOOK
V. C.

CONTENTS

	<i>Page</i>
INTRODUCTION	9
PREFACE	15
CHAPTER ONE. THE SKY BY DAY AND NIGHT	17
1. The vault of the sky by day. 2. Cumulus clouds as a mountain range. 3. The procession of the clouds in sunlight and moonlight. 4. Between the lower and upper clouds. 5. Mist and atmospheric effect. 6. Lightning and the thunder cloud. 7. The rainbow. 8. The angels' ladders. 9. Dusky rays from a mountain crest. 10. Sunrise and sunset. 11. Evening and morning in the Arctic summer. 12. The eclipse of the sun. 13. The starlit dome of night. 14. The crescent and the star. 15. The shape of a star. 16. Sirius and the Pleiades. 17. Circumpolar stars in the sky of England. 18. The southern sky at midnight from 54° North Latitude. 19. The southern quadrant of the Milky Way. 20. The Southern Cross. 21. The panorama of the stars from the Equator. 22. Comets and the Aurora.	
CHAPTER TWO. LAND AND WATER	35
23. The rocky shore. 24. The sea-beach and breakers. 25. The view from heights which overlook the sea. 26. The coastline viewed from on board ship. 27. Deep-sea waves. 28. The ranges of high mountains. 29. The Bernese Alps. 30. Zermatt and the Plain of Lombardy. 31. Glaciers and icebergs of the Arctic. 32. Chalk downs and fenlands. 33. The Highland glen. 34. Stalactites in caves. 35. Features of the desert. 36. The snowfield in Switzerland. 37. The snowfield in Canada. 38. Alpine lakes. 39. Lakes of the Scottish Highlands and the English Lake District. 40. The mountain stream. 41. Waterfall, rapid and whirlpool. 42. The winding river of the plain. 43. The tidal bore.	
CHAPTER THREE. NATURAL VEGETATION AND WILD LIFE	60
44. The recesses of the wood. 45. Tree-foliage and the four seasons. 46. The olive tree. 47. The baobab. 48. Palm forest, acacia thorns and umbrella pine. 49. Tropical vegetation of the Malay Archipelago and the shores of the Caribbean. 50. Wild flowers in the temperate zones. 51. Wild life in the landscape. 52. Insects in flight. 53. Birds in flight. 54. The greater species of wild mammals.	

CHAPTER FOUR. THE SCENERY OF CIVILIZATION .

55. The capitals of civilization. 56. Stonehenge and the megalithic monuments of unlettered times. 57. Egypt, and the scenery of past civilizations. 58. The pillared portico in ancient Rome and modern cities. 59. The triumphal arch in the scenery of cities. 60. The architectural crescent. 61. The Great Wall of China and the Roman Wall. 62. The Byzantine dome and its mosaic decoration. 63. The dome as a feature in the scenery of cities. 64. Lighthouse and minaret. 65. Arched bridges. 66. Thirteenth-century Gothic of abbey and cathedral. 67. Wooden churches of Norway derived from naval architecture. 68. The Stockholm Town Hall. 69. The Dutch gable. 70. Market places in the tropics. 71. Lintel architecture of steel-framed buildings. 72. Buddhist temples and their sacred gardens.

CHAPTER FIVE. THE SCENERY OF CIVILIZATION

(continued)

73. The forms of life in sculpture. 74. Sculpture as an ornament of cities. 75. Buddhist sculpture and the Daibutsu of Kamakura. 76. Heraldry in the architectural scene. 77. Pictorial advertisement. 78. Nature as a decoration in the scenery of cities. 79. The enhancement of Nature by architecture. 80. The house set on a hill. 81. Rural architecture in the Cotswold region. 82. Wooden chalets of the Oberland. 83. Agriculture and the seasons. 84. Domestic animals of road and field. 85. Modern industry as a spectacle of power. 86. Flame in the outdoor and indoor scene. 87. Stream-lines in Nature, ships and aircraft. 88. The sails of ships and boats.

CHAPTER SIX. INDOOR SCENERY

89. The verandah. 90. The window view as a framed picture. 91. Stained glass church windows of Tudor times. 92. The arabesque. 93. Wood carvings of perforated screens. 94. Mural paintings. 95. The high-pitched roof with timber frame. 96. The panelled room. 97. Apartment and furniture of the same period. 98. Oriental carpets. 99. Borders and frames. 100. Enlarged photographs of Alpine scenery. 101. The picture alcove in a Japanese house. 102. The pattern of reflection upon silver vessels. 103. Ornaments on the shelf. 104. Flowers and minerals. 105. The art of lettering. 106. The cabinet of coins.

LIST OF ILLUSTRATIONS

	<i>Facing page</i>
1. THE FOOT OF THE UPPER GLACIER	16
2. THE EIGER	16
3. BUTTERMERE	17
4. LOCH AFFRIC	17
5. LLANBERIS FALL	24
6. HAWTHORN IN BLOOM	24
7. RIVER DOVE	25
8. RIVER EDEN	25
9. HAWAII	32
10. SOLOMON ISLES	32
11. ELEPHANTS	33
12. REINDEER	33
13. STANDING STONES, ARRAN	48
14. THE PYRAMIDS	48
15. ORANGE, THE ARCH OF MARIUS	49
16. HADRIAN'S WALL	49
17. CHIPPING CAMPDEN, GLOUCESTERSHIRE	64
18. STANTON, GLOUCESTERSHIRE	64
19. RUFFORD OLD HALL, LANCASHIRE	65
20. PACK HORSE BRIDGE, BAKEWELL	65
21. FROM DERWENT EDGE	80
22. GOYT—IN THE GOYT VALLEY	80
23. RIEVAULX ABBEY, YORKSHIRE	81
24. RICHMOND CASTLE, YORKSHIRE	81
25. FLORENCE, THE DOME	96
26. VENICE, ST. GIORGIO	96
27. STOCKHOLM TOWN HALL	97

	<i>Facing page</i>
28. JERSEY, LA CORBIERE	97
29. STELLENBOSCH, CAPE COLONY	112
30. SOMERSET WEST, CAPE COLONY	112
31. EQUESTRIAN STATUE BY WATTS, RHODES MEMORIAL, CAPE PENINSULA	113
32. DINING HALL, HATFIELD HOUSE	113

Numbers 1, 2, 5, 26 and 31 are from photographs by the Author.

Numbers 4, 6, 7, 8, 13, 17, 19, 20, 21, 22, 23 and 24 are from photographs by P. A. Barnes.

Numbers 3, 9, 10, 11, 12, 14, 15, 16, 18, 25, 27, 28, 29, 30 and 32 are from photographs by Exclusive News Agency.

INTRODUCTION

I SUPPOSE a typical business man, or factory worker, or engineer, or farmer, or housewife, picking up this book and turning over its pages, or even glancing at its title, would be inclined to class Dr. Cornish as highly specialized and idealistic—a man who lives out of the common world among rarefied emotions and refined thoughts.

The truth is the exact opposite. Dr. Cornish lives in the real world. It is the mass of ordinary folk who live in abstract and idealistic worlds—all different, and all at several removes from reality. Business worlds, for example; technical worlds, career worlds, "movement" worlds. When Dr. Cornish looks at a building, he *sees* the building. When he looks at a tree, he *sees* the tree. You will have to read his book attentively before you can grasp how unique he is in this respect, yet what a simple secret he possesses, and how easily (as it seems, though it is not really so easy) we can follow suit.

Very few of us see what we look at. Any intelligent person who goes for a walk with a child finds that out, and at once forgets it again. We have all been educated, by school and life, to eliminate, to select, to rearrange reality. Even the superiority of the child to the average adult is only relative; for we begin to specialize and to put on blinkers at an astonishingly early age. As we grow up we acquire more tightly-fitting blinkers. A builder who looks at a building takes it mentally to pieces; it is bricks, timber, plaster, labour, weight, resistance, *£ s. d.*—anything but the house Dr. Cornish sees, and the thing it most directly and obviously is. An architect's eye wrenches the house out of three dimensions, flattens it, and pins it down on a mental

drawing board, where it can be judged as an abstract design against fixated standards already dominating the architect's mind. An artist's eye seeks a particular "angle" from which the house and some chosen features of its surroundings can be rolled out on to a single plane and composed to exhibit rhythms of line, mass, or colour with which the artist is preoccupied.

Natural phenomena can be looked at in as many different ways. A tree is not the same thing to the unspoiled eye of the townsman as to the sophisticated eye of the countryman, who knows about elm beetles and the destructive habits of ivy. The forester's eye assesses the tree's quarter-girth, the farmer its effect on his crops. The naturalist looks at it to check some theory of growth or survival that is in the forefront of his thoughts.

Some may think at first that it is to the artist's vision that Dr. Cornish's most nearly corresponds. But this is far from the truth. The artist's preoccupation is the search for components for a novel synthesis. He has his own designs on Nature and the works of man. His aim is to make them what they are not—or are not yet.

Others may catch at my illustration and say that Dr. Cornish has the eye and tactile sensitivity of the child. But that is not the whole truth either. A deep understanding (derived from geological and geographical and much other knowledge) influences his vision and the use of his other senses; and it could be argued that this implies the entry of abstraction and idealization no less than in the cases I have mentioned of the builder, the architect, or the other blinker-disciplined specialists.

Admitting a partial truth here, I think the sort of understanding which Dr. Cornish adds to his direct apprehension of the world is only a facet of his concentration on reality. Technique changes; art is always after the not yet existent thing; both are bored with what is. And in any case we all

have different techniques, being units in a civilization built up on the division of labour; and few are artists, even of those who wish to be artists. Science, on the other hand, is cumulative, while apprehension is always immediate. It is open to any of us (though not without trouble) to acquire some of the wisdom of natural science and to regain something of the direct appreciation of a child. Anyone who can put us in the way of making that combination adds greatly to the riches of our personal life.

That is what Dr. Cornish, read receptively, can do for us. Yet nearly everything in our working and mental life fights against direct appreciation of the external world—leads us towards abstractions and formulations. It is refreshing to come into contact, through the printed word, with a man who, at the age of eighty, has an unspoiled and direct hold on the ever-present and immediate. In a sense this also is a specialization. But in a more important sense it is a correction of the specializations that separate most of us from a simple delight in our surroundings, even when we are not disabled by ill-health, worried by business, or overset by war. There are circumstances, of effort, tragedy or pain, in which for the time being we cannot find joy, or even solace, in direct experience. That does not alter the fact that our sophistication, our expert selectivity, our proneness to fashions in thought or interest, our tendency to identify ourselves with causes or creeds or institutions and their vicissitudes and prospects, do blind or deafen us to many pleasurable sensations that are always available to us.

Let me now explain how I come to be introducing this book. I am doing so because the author sent the manuscript to me as Honorary Secretary of the Town and Country Planning Association, saying he would like the Association to arrange for its publication, with an Introduction showing the connection between its subject matter and the issues of planning with which the Association is concerned. I have

begun by going well outside this mandate, and have space left to obey it only briefly.

The connection is this. Dr. Cornish devotes this book, as he has devoted many previous books, to opening our eyes and awakening our other senses to the beauty of the world, and particularly of our own island. There are many people in the world, millions of them in this island, who are cut off from much of that beauty, not solely by their own pre-occupations or miseducation, but by the arrangement of the buildings in which they live and work. They are boxed in from the countryside; they do not see the life and change of growing vegetation; rivulets do not run for them nor birds sing; horizons do not exist in their landscape; even the firmament of stars is severely censored by high-angled walls. It cannot be said that country beauty means nothing to them. They greet it with rapture on the rare occasions when they can get to it. But æsthetic starvation brings its Nemesis. The townsman on his excursions sometimes desecrates the country that he loves, but whose economy and necessities he does not understand. The ecstasy that he experiences on an open downland is so overwhelming that a dropped piece of orange peel or cigarette packet no more disturbs it than a robin's chirp would disturb his enjoyment of the triumphal trumpets of *The Messiah*. These things offend the more habitual frequenters of the countryside just because their delight in the whole scene is subdued by familiarity, and their apprehension now dwells on particularities and refinements. But if the "lovely light," for all of us, sometimes fleets, it can also return in full force to those whose faculties are not atrophied.

That the townsman's craving for country-side beauty is not just a holiday mood is shown by the very form of development that planners most deplore—scattered and ribbon building. When he is well-off enough to escape his urban prison, he often finds satisfaction for himself in some

isolated bungalow or roadside villa. It is no part of his intention, though it is the fact, that through bad design or clumsy siting he thereby spoils a part of the country-side for others.

Cultivated resentment at the injury done in recent years to the country-side by sprawling and scattered development is not enough. We must look further, and deal with the deprivation that is its cause. The human passion for space, for sky, for "glimpse of far horizon" (in Ruskin's phrase), for contact with green and growing things, precedes the appreciation of artificial beauty, in the ordinary human soul as it does in this book. Modern planning recognizes a working distinction between the town and the agricultural country-side. It would protect good farm-lands from casual and ill-considered building, and provide for new industrial development and the houses that go with it by grouping them in well-planned new towns and in extensions of towns not already too large. But it would also bring the sun, the sky, trees and flowers into the old cities, reducing their congestion, and rebuilding them with homes making for a happy family life, gardens in which children may grow up with an appreciation of natural beauty, and gracious buildings in which a rich community life may flourish.

I do not think our unresponsiveness to the world around us is wholly due to the squalor and ugliness which prevail in our cities and occasionally defile our rural lands. But these are certainly a deterrent to the better cultivation of our sensibilities. Some parts of our cities are so lacking in visual beauty that men could hardly live in them unless a cataract of insensitivity or a film of illusion grew over their eyes, and their other senses have to be similarly dulled if life is to be tolerable. There is a vicious circle here which Dr. Cornish's wide but not indiscriminating appreciation will help to break. We can be yea-sayers to civilization without being *Ja*-sayers to its uglier forms. But the corollary is that we must

impose our quickening love of beauty on our environment, so that delightful buildings set among lovely gardens become the rule instead of the exception.

F. J. OSBORN

January, 1943

PREFACE

IN the Presidential Address to the Royal Geographical Society in 1920, Sir Francis Younghusband declared that it was the duty of geographers to undertake the analytical study of beauty in scenery. I responded immediately to this appeal, and in works since published have recorded the advance in my investigation. This has now reached the stage when the subject can be formulated in a manual, for which the present time is especially appropriate, on account of the need for education in scenic amenity in preparation for the re-planning of town and country, in this and other lands, when peace has been restored.

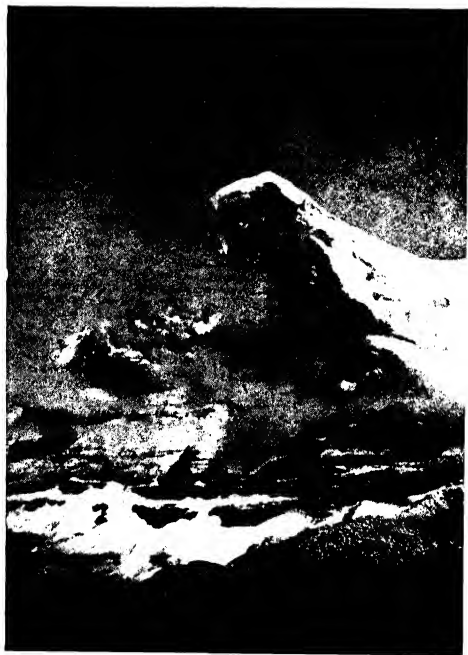
The visual environment of man has two aspects, the outdoor and indoor view. The scenery of civilization includes architecture, and the practical question therefore arises whether to omit the consideration of interiors from a study which has to do with architecture or to extend the use of the word scenery to include the indoor view. For a geographical survey, the latter alternative seems preferable, and has been adopted in the present work.

VAUGHAN CORNISH

*Inglewood
Gordon Road
Camberley
Surrey*



THE FOOT OF THE UPPER GLACIER, Grindelwald





UTTERMERE



CHAPTER ONE

THE SKY BY DAY AND NIGHT

(1) The Earth a vast plain, Heaven an arched canopy—such was the primitive conception of the world. Now that we know this planet to be a spinning ball, and that the stars are not arranged upon a revolving dome, it is customary to regard the old idea of the scenic world as a delusion, and the modern idea as the only reality. This doctrine should, however, be reconsidered, for there can be no æsthetic science of scenery unless we recognize two kinds of truth therein, the psychological and the physical. If we are to get full value from the beauty of our surroundings we must not allow physical science to turn our minds away from the study of what things really look like. In point of fact the impression of a flat earth, rough or smooth, and a domed canopy above is indelible, for it is the record given by the unchanging faculties of the eye. Such is the appearance of Man's outdoor dwelling in whatever part of the world his home may be.

The canopy by day is of varying camber according to the weather, but the range of curvature is the same in all parts of the world. The blue sky lacks definitude of form until clouds appear, and then our world is roofed over with a decorated vault of blue and white. Its apparent height varies greatly according to the texture, size and form of cloud. The multitude of small dappled clouds called "Jacob's flock" imparts the impression of a huge spread of the vault, the delicate texture of the cirrus gives the sense of great height, and this attains its maximum when these almost stationary clouds are seen above the massive forms of cumulus drifting in the lower air.

(2) The cloud which condenses in a column of ascending

air takes on a dome-like form and, growing in height as the day goes on, becomes a pyramid of domes. The actual appearance depends upon the position in the sky. Of those overhead only the flat base of the pyramid is visible, but those not many degrees above the horizon are seen in their true, mountainous form, which is not only individual, for the succession of ascending spirals often forms a continuous range of mountainous clouds. In its general proportions this recalls the distant view of an "alpine," i.e. high-mountain, range, but the sunlit domes of cloud, brilliant in reflection and softly shadowed, are more massive in their modelling than the scarped pyramids of rocky peaks.

Looking across the waters of the Bristol Channel from the cliffs of North Devon, such a range of cumulus above the south coast of Wales rivals in grandeur the Bernese Alps when seen beyond the Lake of Neuchâtel. But whereas the individual forms of the latter become indelible memories, the mountainous clouds, dissolving in thin air as the evening comes on, leave no such lasting impression on the mind. The proper appreciation of their beauty is, however, ensured if we let the eye dwell upon them whenever they appear, not merely noticing their momentary aspect but watching their growth as dome is piled upon dome.

(3) On a breezy summer morning when the cumulus clouds collect and drift across the sky they move in stately procession, keeping station as they go. From the windward horizon the central clouds travel up and over, while those on the flanks spread out to right and left until half-way across, when they close in again towards the horizon of their exit. Thus the perspective of the sky makes their movement seem as disciplined as that of a cavalry manoeuvre.

The sun high up is so much too powerful for human vision that a surrounding circle of the sky, nearly equal to an ordinary field of view, is cut out from the scenery of cloudland. But when the moon, at or near the full, shines

amidst the clouds it is the focus of the field. Here the passing clouds are lit, the clear sky between is darkened against their illuminated border, and their procession is impressive as they eclipse and again reveal the "apparent queen" of night.

(4) When low, dark clouds gather so closely that the upper clouds are shut out from view, the lower stratum has but a slight apparent curvature, so that the sky has lost both brightness and the splendour of its dome. This lower layer of cloud, although dull as a canopy, presents a very different aspect when, flying upwards through it in an aeroplane, we emerge in the bright world above. Then the cloud layer seen below appears as a level ocean shining in the sun, with a circular horizon far away, and so we can fly on in blessed solitude above the sea of heaven and beneath a calm canopy of the upper air.

(5) The trees of the forest present a new picture when seen through mist, as we call the cloud which settles on the land. The trees then lose their relief, and their outline is accentuated so that they resemble a picture painted "on the flat," as is the custom in Chinese art.

The buildings of cities, range behind range, are seen on days of mist or fog in such difference of tone that apparent distances are immensely increased, and therewith the impression of height, so that we seem surrounded by a giant architecture. In open country, on the other hand, dense mists make the visible world seem small, for the distant hills are blotted out.

The dweller in the plain is not accustomed to regard ground mist as a cloud, but will realize the fact some day when as he climbs into the hills the cloud suddenly descends and the wanderer finds himself wrapped round with a rolling mist. No movement then is safe, so he must wait inactive in the dampness and the gloom. Yet patience is rewarded beyond measure when the cloud parts asunder

and between the mists on either hand the blue sky is seen with far-off cirrus floating serene in the upper air, seeming the revelation of a happier world.

In the plains and valleys where men mostly live, the passing of the morning mist reveals beauties of another kind, the transitory jewellery of sunlit dew-drops. On the points of grass, ruby, emerald and topaz sparkle in the sun, but even more precious than these are the pearl necklaces of a spider's web, row upon row arranged in a pattern so perfect that it excels the finest work of jewellery.

For the full understanding of the terrestrial landscape it is necessary to realize that it is usually seen through an atmosphere of a transparency intermediate between that of palpable mist and of the vacuum in which the landscape of the Moon stands out in perfect clearness when viewed through the telescope. In England the absorbent atmosphere of an oceanic climate enhances the moderate scale of our hills and valleys; in the high mountains clear air reduces the apparent scale.

The crowning effect of atmosphere on landscape is the blueness of distance which etherealizes the far-off hills. This effect of blue distance is perfectly displayed in the coastal scene where each succeeding promontory stands in softer tone.

(6) When, after sunshine, thunder-clouds gather in the sky, their darkness brings a sense of gloom, which may perhaps, be heightened by some subconscious effect of electrical conditions. Then the broad curtain of the cloud is split by a ribbon of dazzling light descending to the earth, a momentary illumination followed by the awe-inspiring sound of rolling thunder. Apart from considerations of actual danger, there is something terrible in the zigzag flash of lightning, yet it is recognized as beautiful. Thus the beauty of scenery has its terrific as well as soothing aspects, as the pleasures of the drama include tragedy.

(7) The rainbow is Nature's triumphal arch, which welcomes the return of the conquering sun when the storm clouds are in retreat. It is supreme in the combination of colour, symmetry and apparent magnitude. Always perfect as the arc of a circle, the band of concentric colours attains full dimension as a round arch when the sun reaches the horizon. Then the summit of the bow is nearly half-way to the zenith, and, as it never rises higher, the arch does not overhang but is always upright.

In the Book of Genesis the rainbow is described as a supplement to the general creation, a feature which appeared after the passing of the Deluge. That the Greeks as well as the Hebrews regarded the rainbow as a link between the scenery of Heaven and Earth is shown by the part of Iris, goddess of the rainbow, the messenger of gods to men.

The change of mental outlook on the optical phenomena of the sky is a curious and instructive chapter in the æsthetics of scenery, historically studied. These forms without substance, yet with symmetry more perfect than the material features of the Earth, were miraculous to the ancients, but in the physical science of to-day are explained with an exactitude which has not been attained in the study of the features of land or forest. It is only the source of their influence on the emotions which has not yet been sufficiently explored.

(8) When we sail upon seas where the Trade Winds blow, the clouds collect as the day goes on, leaving small gaps between, through which the sun sends down those beams of light which we call Angels' Ladders from the story of Jacob's dream. In the misty weather of northern latitudes the beams can be traced onwards against the background of the sea, but in the clear air of the Trades every band of light is based upon the level horizon. The whole group spreads as the fingers of an outstretched hand, and so to the people of

the Far East the spreading beams appear as the hand of Buddha laid in blessing on the world.

There are circumstances in which these beams of light which link the scenery of Heaven and Earth are pictured in the mind's eye as a pyramid based on earth and rising toward the sun. Such is the effect in the country of the Fens. Here the horizon of the land is very low in the field of conscious vision, and the ascending rays assume such dominance of height that their pyramid transcends any that has been made by the hand of man, and rivals, if indeed it does not surpass, the *massifs* of an Alpine range.

(9) A band of transmitted light or of transmitted shadow, whichever is the narrower, is the visual object, the broader band forming a mere background. Thus when the sky is flushed in the early morning light, but the low sun is still hidden by a mountain *massif*, dusky rays are cast upwards from the rocky pinnacles of the crest. The rays spread out to right and left and each terminates in a sharp point, the complete pattern making a stellate crown for the mountain, shaped like those we can see upon the coins of the later Roman emperors.

There is a similar pattern on the upper side of a cloud which hides the sun, but the silver lining of the cloud is so brilliant that the dusky rays are hardly noticeable. Thus only those who dwell among the high mountains are familiar with this strange beauty of the sky.

(10) The most beautiful hours in the round of the day are those of sunrise and sunset, but, if they are watched diligently through, the subsequent effect upon the emotions is very different. In the morning the final flood of colourless daylight turns the mind towards activity, and thus tends to dismiss the reflective mood engendered by the spectacle of dawn. In the evening the colour of the clouds deepens to crimson as the light fades, and at last the sober blue of twilight brings rest and comfort to the mind. When Venus is

the evening star; this solitary silver spur set in a sky of tranquil colour evokes the mood of thanksgiving for Nature's beauty.

Evening, not morning, is the supreme hour of contemplation, but for those who dwell upon a coast which faces the rising sun, morning brings the most thrilling event in all the round of Nature's day. This is the sudden appearance of the sun above the level horizon of the sea, casting a lane of rosy light upon the waters which reaches to the wave that breaks upon the shore. This messenger of the returning day comes straight towards the dwelling of every man who lives upon this shore. Such is the advantage of optical phenomena in comparison with the material features of scenery.

The apparent enlargement of the level sun was attributed by Alhusen in the eleventh century, and some say by Ptolemy in the second century, to comparison with terrestrial features seemingly small upon the distant horizon, and this explanation has been accepted with docility for centuries. When at Bern the sun is seen to rise above the distant Wetterhorn it does, indeed, appear much larger than when seen rising above the same mountain viewed from Grindelwald near by; but when I made drawings of the mountains comprised in the field of attention (that is of conscious vision) from both places, putting in the disc of the rising sun as I saw it then, I found that the horizontal angle of the field was much smaller at Bern than at Grindelwald, and that from Bern the mountains were subjectively magnified in the same degree as the sun itself. Pursuing this investigation in many places, I established beyond doubt that the apparent enlargement of the level sun is not due to mental comparison of magnitudes, but to reduction in the field of attention, and to the fact, which I have verified, by observation, that this reduction is unconscious, so that the impression of magnitude produced by an object is

proportional to the fraction of the field of attention which it occupies. Amongst these observations may be mentioned that of the low sun seen through the lattice-work of boughs. Even when the trees are near by, the enlargement of the sun is great, because the field of attention is diminished by the minuteness of the pattern.

Although the enlargement of the level sun is the same at rising as at setting, the effect is more noticeable at sunset than sunrise, owing to the circumstance that in the former case the process of growth can be watched.

(11) When we cross the Arctic Circle in the season of the summer the sun descends towards the hour which in lower latitudes is midnight, and then, after approaching the horizon once more ascends. It happened once during a pleasure cruise which carried pilgrims of scenery to the far north, that the ship hove-to near the great ice-capped volcano of Jan Mayen. As the sun descended, the icy mountain flushed pink, and this colour deepened almost to crimson as the sun neared the horizon. What followed was an experience entirely new to the travellers, for no blue of twilight followed on the succession of sunset colours which were succeeded directly by the colours of sunrise, crimson changing to pink, the whole gamut of the sunset colours being repeated in reverse order, a spectacle of beauty enhanced by the quiet colour of the sea in which the solitary mountain stands.

(12) It is very seldom that the path of the Sun's eclipse crosses our island, but in June 1927 the band of totality stretched from North Wales to the north-east coast of England. The summit of Snowdon was a place of outlook, where from an outlying peak it was possible to watch in solitude. This was like the turret of a castle fenced by rocky battlements standing above a deep valley wreathed in cloud. It was early morning, the sky was clouded and fine rain whirled around in the gusty air. There was no hope of



LLANBERIS FALL.



HAWTHORN IN BLOOM

this case I offer the suggestion that the apparent number is multiplied by that independent sparkling of each star which momentarily attracts attention on every hand.

(14) When the Moon first appears two days after passing the Sun its crescent resembles the slender sickle used for the reaping of corn. Next evening the three-day Moon displays in perfection the convex and concave curves meeting in cusps, a form unique in the scenery which Nature presents to the unaided eye. It happens that Venus, the morning and evening star, is at its greatest brightness when about the same apparent distance from the Sun as the three-day Moon, and remains longest in the sky when at the same distance as the four-day crescent Moon. Thus it often happens that the combination called "the crescent and the star" appears in evening or dawn. Most decorative of all aspects is that of the Moon and Venus in conjunction as seen when we are sailing upon a calm sea, for then beneath both crescent and star a long lane of light appears upon the water.

The crescent and star form the design of the Turkish flag, the crescent shaped as the three-day Moon, the star a broad-rayed pentagram. This was adopted by the Turks from the ancient symbol which Byzantium inherited from pagan times when Diana, goddess of the moon, was the city's patron deity. Such ancient symbols testify the appeal which the outstanding beauties of Nature have made throughout the ages to the mind of Man.

(15) Every object with spiked rays projecting from a small centre is described as star-shaped. This custom shows that stars have the same general appearance for all men of normal sight, yet when people skilled in draughtsmanship are enlisted to make a diagram of the shape of a star as they see it, the principal rays are represented in different positions. The conventional shape adopted for a star, particularly in heraldry, is usually a pentagram.

Venus in the twilight appears as a spur of the ancient type which had a few large rowels; but when seen against the background of a dark sky the main rays are set amidst a multitude of fine filaments radiating in all directions.

In the case of the "fixed" stars it is less easy to determine the position of the main rays, owing to scintillation, but after becoming familiar with the appearance of the planets, the fact that the position of the rays is identical can be recognized in the case of Sirius and other stars of first magnitude.

It is the general opinion that the main rays of a star are due to the astigmatism which is a defect of almost every eye. The plane of astigmatism is seldom the same for the right and left eye, with the result that the basis of the star-shape is usually a cross, with pointed ends, more often a St. Andrew's cross than the upright St. George's cross. Some extra ray is however usually present, making at least a five-rayed star.

As the sky darkens, the rays reach out further, and when darkness is complete the area covered by the rays is considerable, those of Venus at her brightest covering a space almost as great as the size of the full Moon.

Thus as the night becomes darker the sky gets more filled with stars, not only because of their increasing number, but also on account of the increase in their apparent size.

(16) The flashing of the fixed stars, as we call those which keep their place in constellations, is a quality of beauty, especially in those of great brightness, and in this combination Sirius is pre-eminent as viewed in the latitude of England. Here this brightest of all stars rises high enough to display its brilliance but not above the zone where atmosphere exercises marked effect in scintillation. If we travel southwards to foreign lands where Canopus, second of the stars in brightness, reaches the same height, this star flashes as does Sirius in our latitude; but Sirius, now high

up in the sky, though it may be a little brighter than before, is somewhat less remarkable than when it leads the starry host both in flash and brilliance.

Although one star flashes independently of another, each according to local movement of the air, there is one minor group, or asterism, the Pleiades, where six stars are so close to one another that all come within the small but perfect field of vision compassed by that part of the retina which is called the "yellow spot." Thus the group of the Pleiades is an object almost as individual as the Moon itself. Yet for no two instants in succession is this object entirely the same in appearance, for the relative brightness of the stars changes from one moment to another. That the analysis of this effect is a problem worth solution is evident from the fact that this small group of lesser stars has been regarded throughout the ages as an important feature in the scenery of night. For the understanding of its charm we should correlate the sensation of sight with that of sound. The scintillation of the Pleiades has an effect comparable to that of the six-bell peal of a village church ringing out its seven hundred changes in the calm evening of the English country-side.

(17) Of the thousands of stars which come within the unaided sight in the northern and southern hemisphere only about twenty are classed, in accordance with ancient tradition, as of the first magnitude, that is to say of supreme brightness. Each has its own distinctive beauty, and of them it may well be said that "one star differeth from another star in glory."

Capella and Vega are the nearest to the North Pole, and in the sky of fifty-four degrees north (the central latitude of Great Britain) these two bright stars, opposite to one another near the rim of the wheel which circles round the pole, descend from near the zenith until each in turn skims the north horizon. At the hub of the wheel is the Pole Star, of second magnitude, round which the group of seven stars

called the Great Bear or Charles's Wain, all of the like magnitude, revolve. Their distinctive form seen in every position provides the chief witness of circumpolar revolution. The star-gazer watching and waiting throughout the night thus receives a much more complete impression of a revolving world than can be conveyed by the rising and setting of the sun.

(18) For the study of the stars upon the southern sky of Britain it is best to begin our survey at the time of longest night, when, about December 21st, Right Ascension VI hours (Longitude 90°) is on the southern meridian at midnight. Then the Galaxy descends steeply from near the zenith to the horizon, sloping slightly to the left, the nebula or Milky Way proper, a single stream of no great brightness, but the Galactic band of bright stars especially beautiful, for it comprises the group of constellations centred on Orion. This is well displayed in our latitude where Orion, upright on the meridian, stands at an altitude sufficient for clear air, yet not too great to come easily within the range of sight. The symmetry of Orion is remarkable, and the size of the constellation impressive, yet easily taken within the field of sight. The influence of a distinctive name tends to restrict attention to the constellation, yet the field of view customary when looking at stars, some sixty degrees in diameter, comprises both the Pleiades on the west and Sirius and Procyon on the east. This constellation-of-constellations, if the expression may be allowed, was recognized by the observers of ancient Greece, in whom the artistic and scientific faculties were remarkably combined. In their legend the Pleiades, daughters of Atlas and Pleione, were fleeing before Orion, the mighty hunter, who was followed by his hounds Sirius and Procyon.

At midnight on March 21st, the Spring Equinox, R.A. XII (Longitude 180°) is on the south meridian. This passes through the border of the constellations Leo and Virgo.

Near by are the first magnitude stars, Regulus on the west, Spica and Arcturus on the east. The general aspect of the southern sky is now very different from that in mid-winter, for there is no band of nebula, no associated stream of bright stars, no clustering along that course of a multitude of tiny stars, but a more uniformly distributed pattern of stars of medium magnitude. This pattern comprises several groups of decorative form, of which the most remarkable is the upright sickle of Leo with the first-magnitude star Regulus at the end of the handle. It is indeed singular that this form in the heavens should not have been associated throughout the ages with the implement so perfectly symbolic of the ancient industry of agriculture.

At midnight of June 21st, the Summer Solstice, when R.A. XVIII (Longitude 270°) is on the meridian, the Milky Way is once more central in the southern sky, descending steeply from near the zenith to the horizon, sloping slightly to the right. It happens, however, that in the latitude of Britain there is no complete darkness at this time of year, so that the nebula does not stand out strongly, and sixth-magnitude stars, the most numerous category, are invisible. Thus in order to see to full advantage this particularly beautiful aspect of the Milky Way and its associated constellations we have to wait until the early part of the month of August when dark nights return, and then at 9 p.m. we see the double stream with brilliant bosses and dark cavities which reaches its most conspicuous aspect low down in Sagittarius. The Galactic band now visible comprises many stars of considerable brightness, although only two, Altair and the red Antares, are of the first magnitude. Thus when we compare the galactic band in the southern sky of summer with that of winter we see that the former excels in the beauty of the nebula, the latter in the brilliance of the stars.

We are accustomed in Britain to recognize the special

beauty of the double band of nebulae, but additional enjoyment awaits us when we first see the same part of the Milky Way in clearer continental sky, such as that of the Province of Quebec in Canada. Then we can trace wisps of the spiral nebula which branch out on either hand into the adjoining constellations.

The Equinoctial Line of Autumn, R.A. XXIV (Longitude 360°), is on the meridian at midnight about September 22nd. The aspect of the southern sky has now the same general character as at the Spring Equinox, a general distribution of stars of medium brightness. Only one of the first magnitude is visible in the southern sky, Fomalhaut not far above the horizon, and the principal feature is a symmetrical group of four stars of second and third magnitude, the Square of Pegasus. This spans the meridian, high up but not above the ordinary range of sight. The form is remarkably regular, and the size equal to that of any collection of stars which the eye naturally groups together, the diagonals being twenty degrees in length. The brightness of the stars is sufficient to make the square and outstanding feature in a region of the sky which is so far from the crowded Galactic zone. This meridional feature corresponds in importance with the Sickle of Leo as seen in the Spring Equinox. The absence of any obvious connection between the form of a winged horse and the shape of a square makes the traditional name handed down from Greek and Roman times unsatisfying. Recently, however, we have been told that an earlier description has been traced, that given by the astronomers of Babylonia in the Sumerian epoch, thousands of years before the Christian era. In this ancient astronomy the great Square was symbolic of the Garden of Eden of which the four great rivers are each represented by a pair of the surrounding stars.

The groups which constitute the principal constellations, mostly about twenty degrees in diameter, and composed of

stars from the third to the first magnitude, stand out most conspicuously when not crowded by those from the fourth to the sixth magnitude. The circumstance that Pegasus, Leo and Ursa Major are far from the Milky Way makes them the more conspicuous, whereas constellations situated, as Orion, in the Galactic belt are less outstanding on a clear dark night than when late twilight, early dawn or the light of a crescent moon obliterates the crowd of tiny stars.

(19) The Milky Way is a great circle of the sphere which cuts the celestial equator at an angle of, about, sixty degrees. Of the constellations strung out upon it Cassiopeia is nearest to the North Pole, and Centaurus, in which the Southern Cross is situated, nearest to the South Pole. Whereas in the latitude of Britain at midnight on the Spring Equinox the southern sky shows no part of the Milky Way, the view from the Equator at that date displays in perfection its southern quadrant, for the meridian traverses the Centaur near the Southern Cross. This quadrant forms the summit of an arch extending the whole way from east to west, so that the Centaur quadrant, mostly invisible from the latitude of Britain, is seen linked up with those which are centred on Aquila and Orion. Near the eastern base of the wide arch is seen the red Antares; low in the west Sirius and Canopus are flashing. This midnight view looking south from the Equator at the Spring Equinox is as fine an aspect of the Milky Way as can anywhere be seen. It unites the two aspects of its beauty, the bright glow of the nebula and the stream of bright stars. From one side the bright stars continued southwards from Orion pass on through Argo and culminate at the Southern Cross and its two Pointers, which together form the closest collection of first magnitude stars, whilst on the other side the nebula, continued southwards from Sagittarius and Scorpio, forms a narrow but more brilliant stream, enclosing dark cavities, the whole offset by the almost starless spaces of the sky above and below.



HAWAII





LEPHANTS



(20) The Southern Cross is upright when on the meridian and is thus seen in symbolic form when crowning the Galactic arch. It happens, moreover, that seen thus from the Equator the altitude is entirely suitable for the display of its symmetry, the height sufficient to be impressive yet not so great as to give the effect of leaning over which militates against that appearance of uprightness which is needed for the sake of association.

The stars of the Southern Cross came within the view of navigators in classic times, but it does not seem that they were thought of then as representing a cross. As there is no fifth star to mark the intersection, the group may have been visualized as a trapezium. When, however, in later times sailors from western Europe, who always had a cross of Latin shape upon the ship's deck, sailed south towards the Equator and saw the constellation Centaur upon the meridian they visualized the four stars not as surrounding an enclosed space but as connected with one another cross-wise, and this subconscious tendency was undoubtedly influenced by the fact that the lower limb is the longer, as in the Latin cross.

(21) Those who live near the Equator have the unique advantage of seeing all the constellations. Not only is the panorama complete in the course of the year, but the long interval between sunset and sunrise and the shortness of the evening and morning twilight make the views at the beginning and end of night almost complementary. Thus on every night throughout the year the panorama of the constellations is very nearly complete. The picture thus provided of the whole circle of the Milky Way is a special advantage, for this marks the plane about which the stars within the range of human eyesight are symmetrically grouped. Moreover, this is the world of stars to which our sun belongs.

The rotation of the constellations round the northern

and southern pole cannot be seen from the Equator, but a compensation for this loss in scenery is afforded by the impression of swift revolution which is given by the vertical ascent and descent of the stars. This rapid change of altitude makes the spectator realize that the Earth is a spinning ball.

(22) The great comets, visitors to the central district of the solar system, are so rare that their magnificence in the sky of night may be but the solitary experience of a lifetime, yet even so the memory endures. It happened that the great comet of 1882 was at its culmination in the winter months and well seen from the Riviera, where many travellers had gathered at the pleasant health resorts. Looking south from the steeply sloping shore, the great curved plume, comparable in length to one of the major constellations, was hanging in the sky near the upright form of Orion, looking as though it were about to plunge beneath the waters of the sea.

The aurora, seen frequently at night in the high latitudes of both hemispheres, has various forms which bear some slight resemblance to those of cloud, but the texture is that of a transparent veil. The stars shine through the veil with scarcely diminished lustre. When the wisps and rays with illusive movements spread over all parts of the sky there is no perspective crowding towards the horizon as is the case with terrestrial clouds. Thus in appearance the aurora seems neither to belong to the earth nor to the stars, but to be a mysterious visitor from yet another world.

CHAPTER TWO

LAND AND WATER

(23) Of the world beneath the sky the greatest scenic feature is the coast, where for thousands upon thousands of miles the land is outlined against the contrasting waters of the sea. The coast is not only remarkable for the aspect of the land but for the prospect of the ocean, which is far wider from cliff or mountainous shore than from the deck or even mast-head of a ship.

As we pass beneath the cliffs, walking along the beach or sailing close to the shore, we see the section of the rocks which displays the foundations of land. The illustrative aspect of scenery develops with knowledge, and we owe it to geological research that our emotions are stirred by scenes which illustrate the ancient history of the planet in which we live. The cliffs of Britain show rocks of almost every age, each of which has its special decorative value. The white cliffs of the Isle of Wight and of the opposite Purbeck Island show by flint bands in chalk the upturning and faulting of strata. Further west along the English Channel the earlier red marl and red sandstone cliffs of East Devon present a remarkable contrast with the colour of the sea, and a warm tint which is specially welcome in winter. The weathering of cliffs which face the sea-fret and attack of waves maintains a freshness of colour seldom displayed by inland scarps.¹

At Land's End the cliffs show the deep foundation of granite rocks with a block structure which makes them look like ramparts of cyclopæan masonry piled up by the hands of a giant.

¹ An exception is the Colorado Canyon, with walls five thousand feet in height banded in coloured strata. The spectacle suddenly revealed after crossing a level plateau is impressive to the sense of sight and also to the imagination of all who understand the record of the rocks.

A terminal promontory (point, cape or headland) is one of the world's dominating features, the junction of the three frontiers of scenery, the land horizon, water horizon and shore line. Beyond the promontory there is sometimes a decorative feature, the skerry or detached rock, a moated castle where sea-fowl take refuge.

On the north coast of Devonshire, where the range of tide is great, the furrowed rocks exposed at low tide retain pools of salt water lined with seaweed of beautiful colours, with sea anemones waving their arms, and shells lying on the sandy floor. These still, salt pools should be viewed from a recumbent position and with the eyes shielded from the landscape. Then they are realized as gems of scenery. Every object receives a glaze and lustre from the clear water which neither rock nor vegetation displays on land.

On the other side of the English Channel the granite cliffs of Brittany are the counterpart of those of Cornwall. The opposite shores of many seas are like reflections of one another. Moreover, this is sometimes the case on the opposite shores of oceans, in Canada and northern Europe, in South Africa and the Deccan plateau of India. We used to be told that these regions of similar rock had been divided by subsidence of the ocean, but according to a later hypothesis their division was caused by the drifting apart of continents floating on a semi-fluid underworld.

(24) When the tide reaches the rocky promontory at high water there is no progressive development of the form of breaking waves, but a furious bursting of wild waters with columns of spray flying up against the cliff. During the intervals of subsidence, the rush of the tide is seen as the foam sweeps on past the headland.

The beaches of sand and shingle which the waves deposit in the bays are outlined against the sea in a continuous, concave curve, of an elegance which contrasts effectively with the rugged forms of rocky promontories. The profile

of the beach is also concave, and in shingle beaches this curve is remarkably bold.

Both the appearance and the sound of the breaking waves change as the tide advances. At low water there is a soft murmur upon the flat sands then exposed, which changes to a rhythmic boom when the waves reach the steep, shingle slope. The breaker increases in height, culminates for a moment in a cusp, and then, curling over in a scroll, descends in thunder, the clear dark water transformed into a white, foaming surge which sweeps over the rattling shingle. At high tide the breakers pile up the steep ridge or "full" which crowns the beach, and a line of flotsam and jetsam strewn upon the shingle marks the final limit of the foam.

No other aspect of the natural scene presents so perfect a harmony of sight and sound as the waves which advance upon the shore. To wander by the sea watching and listening to the waves is an act of worship for those who enter into spiritual communion with Nature.

(25) Climbing upwards upon coasts such as those of the French or Italian Riviera, where hills or mountains slope downwards to the sea, the ever-increasing distance of the horizon is evidenced by the appearance of additional and narrower bands of tone and colour. Moreover, the direction of our outlook unconsciously descends below true level, thus increasing the apparent expanse of the watery plain. In places such as Menton a three-hour climb to the summit of a neighbouring peak of the Alpes Maritimes provides a sea prospect of more than seventy miles. No such distance is comprised in the outlook from the cliffs of the English coast, none of which has a height which even approaches to one thousand feet. Yet when we stand upon the edge of a sheer cliff of five-hundred feet the sea horizon is at such height in the field of view that the apparent expanse of the waters is comparable with that from the

mountainous Mediterranean shore, although the actual distance of the horizon is less than half as great. The unconscious depression of the direction of vision is much greater from the edge of the dizzy cliff than from a position upon a negotiable gradient, and the outlook thus conveys that impression of immensity of space which satisfies a craving inherent in the mind.

Those who dwell upon the shore learn to recognize how swift and perfect is the response of the sea to the changing tone and colour of the sky. In fine weather the sparkling surface reflects the brightness of the sun in a thousand changing points of light; then if the heavens are clouded the sea takes on a sombre tone. Thus the tone and colour of the water respond to the round of the day and the variety of weather, though lacking the longer period of response in which the vegetation of the forest records the seasons of the year.

Looking along the lofty shores of a wide bay, the successive promontories stand out each in a softer atmospheric tone, all of them seen against the uniform tone of the sea horizon. This chord of atmospheric tones is indeed one of the delights of coastal scenery.

(26) The line of cliffs viewed from the open sea is monotonous, conveying no indication of the beauty of the profile. It is otherwise when the ship enters fjords, as on the Norwegian coast, where steep cliffs on either hand tower up to prodigious heights. The deep, smooth waters, protected from the rough sea by a shallow entrance, wind far inland and reveal new prospects of beauty at each turn of the long corridor, snowy peaks in the distance and homesteads with tiny meadows between the water and the cliff.

Far away in the Southern Hemisphere, beyond the latitude of 45° , a counterpart of the Norwegian fjords occurs in the south-west corner of New Zealand. This mountainous region is built, as most of Norway, of archæan rocks. The

fjords overhung by their steep cliffs so dominate the scenery that the "county" which they occupy has been given the name of "Fiord."

Where ranges of the Alpine type slope downwards to the sea, as in the Western Mediterranean, a coastal cruise displays in cinematic panorama a rhythmic succession of related forms. The voyage has special advantage for the contemplative enjoyment of this decorative sky-line, but the type itself has even more to do with inland than with coastal scenery. It is otherwise with the spectacle of the volcanic peak, for the volcanoes of the world stand mostly by the sea. The characteristic form is a symmetrical cone with concave profile steepening towards a narrow, flat top. Perfect in form, and of impressive magnitude, Fujiyama is unsurpassed in beauty. Coming into view at the dawn of a clear day in spring, the snow-capped summit seventy miles away looks like a pink pearl hung in the sky. As the sun rises higher and the ship approaches the shore the lower slopes come into view, showing the broad base of the majestic, solitary mountain. The form is idealized in Hokusai's *Hundred Views of Fuji*, the concavity of the upward curve increased and the summit narrowed. This treatment emphasizes the fact that the typical volcanic curve is of the same character as that of the dominant form in Japanese architecture, the concave curve of the temple roof.

Another twelve-thousand-foot volcano, the Peak of Teneriffe, which has an almost pointed summit, occupies most of the island of Teneriffe. The clouds which are characteristic of the Trade Wind area often conceal the summit, but at other times form an ornamental girdle round the mountain. These clouds are ranged parallel to the surface of the sea, which, although the apparent base of the volcano, is in reality but another "contour line" around the cone. The soundings recorded on the chart show that the

true base on which the mountain has been built up is at great depths below.

Vesuvius is but one-third of the height of the Peak of Teneriffe or Fujiyama, but its aspect from the sea has a special beauty owing to the harmony of form between the concave curves of the mountain profile and the crescentic shore of the Bay of Naples. The mountain and the bay are, moreover, of comparable magnitude and, together, occupy the field of view when the ship nears the harbour.

In addition to these static and restful beauties the activity of the volcano adds greatly to the scenic importance of Naples. The smoke which streams out from the crater, this way or that according to the wind, shows that the mountain is one of Nature's factories, and at night the red-hot lava creeping down the slopes recalls the flow of molten iron from the blast furnaces of Middlesbrough.

(27) Beyond a foreground of deep sea waves, massive in form and strong in tone and colour, the distant shore, etherialized by atmosphere, seems like Elysium, the happy land where only soft zephyrs from the ocean blow.

Sailing out on the broad sea beyond the sight of land, the waves become the main feature of scenery. When, in stormy weather, the crests of the waves rise above the skyline, the sea assumes a "mountainous" appearance, in the sense which the word bore when the term first came into use. This included the lesser eminences which we now call hille, i.e. those attaining to hundreds, not thousands, of feet. The actual height of storm waves is usually between forty and fifty feet, but when the crests rise well above the skyline the height appears much greater. This effect is enhanced in the squalls of rain which occur during a storm, the screening effect of the rain-drops increasing the apparent distance of the horizon between which and the vessel is a sea of moving hills and valleys.

The winds of the cyclone have different directions at

front, flank and rear of the centre, and so as the depression passes over any region of the ocean, the waves then raised run across the swell which has been left by the earlier disturbance. Thus, as long as winds are blowing, a "crossing sea" is the usual type of wave in the open ocean, and the features of special beauty are the cusps formed where ridges over-ride, which curve over and discharge showers of seething spray.

When calm weather follows, the short waves die down quickly, and the longer, which have a larger store of energy, become the dominant feature. This ocean swell, continuing its course under the influence of gravity alone, travels far beyond the place where it was raised, and so it happens that in the equatorial region intermediate between the northern and southern Trade Winds, swells from opposite quarters meet and pass through one another. When two crests of like magnitude are superposed, a huge, barrel-vaulted billow rises. For a moment it appears stationary, then a furrow forms along the crest, the two waves disengage, and each continues on its course, resuming the independent existence which had been merged in partners ship.

There are rare occasions when the waves driven by the wind during a storm have a regularity of size and direction comparable to that of the ocean swell, but with the menace of a steep front. This happens when, in a boisterous season, a new storm blows in the same direction as that in which the heavy swell from the last storm still runs. Such was the case in the Bay of Biscay during a great gale in December 1911 when many ships were sunk. The P. & O. liner *Egypt*, buffeted during the night by a beam sea, was brought round with difficulty head-on to the waves. With steam sufficient to keep her so, she rode quietly on the waves throughout the morning. Looking ahead from the commanding height of the bridge, a wonderful procession of long-crested waves

was seen, regular as the ranks of charging cavalry, and these swept on from the horizon at a speed of forty miles an hour. This scene of grandeur was indeed a compensation for the danger which had been undergone.

Waves of large dimensions, particularly of great length, occur more frequently in the circumpolar Southern Ocean than in the divided oceans of the northern hemisphere. It may be that the area of cyclones is larger, but one factor is undoubtedly the continuity of a swell which is not broken by intervening continents. Here and there, the waves break upon a coral reef or other island, and the slow, solemn cadence of the surge is witness of the magnitude of ocean beyond the tapering southern promontories of continents.

(28) The high mountains of the world are mostly grouped in long ranges formed of rocks of different age and substance which have been raised in folds by lateral pressure and sculptured by the agencies of weather. The layers of the later formations have been entirely stripped off the highest, central parts, leaving bare the core of hard and ancient rocks which before the folding began were the most deeply buried. Parallel to the central and culminating range are subsidiary ranges of the more recent, softer rocks. Of valleys there are two orders, the longitudinal, which are downfolds of the original structure, and the transverse, which have been eroded by weather, stream and ice; many of them gorges with frowning crags which show the crumpling of the rocks.

Two great lines of folded mountains traverse respectively the European-Asiatic block and the two Americas. These backbones of continents are the Alpine-Himalayan range and that of the Rockies, Cordilleras and Andes.

In mediæval times the high mountains were looked upon with horror, by the modern man they are regarded as objects of beauty and inspiration. The new outlook was initiated towards the end of the eighteenth century by the geologists

who explored the Alps. By the middle of the nineteenth century mountaineering had become a recreation. The athletic feats were an enjoyment common to all its devotees, of whom some were also motivated by the urge of exploration, others by the love of beauty. It should be noted that this æsthetic appreciation was acquired by direct observation, not at second hand through the work of artists, to whom the public largely owes its understanding of the beauties of lowland landscape. Although people in general now spontaneously admire the high snow mountains, the study of their geology should not be entirely relegated to specialists, for knowledge of the anatomy of mountains contributes to the recognition of their beauty. The truth of this may be brought home by recalling the fact that Michael Angelo's masterpiece, the ceiling of the Sistine Chapel, can be fully appreciated only by those who have studied muscular anatomy.

More moving perhaps than the artistic impression of the high mountains is that felt by those to whom worship of the Creator is the foundation of life and thought. To them the aspect of the mountain peak is the image of Transcendence, the distant prospect of the world below, unified by atmosphere, symbolic of Immanence.

(29) The central Alps provide a typical example of folded mountains, a fortunate circumstance, since they are convenient of access for people of many nations. Between Bern and Milan, one-hundred-and-thirty miles to the south-east, the various aspects of a chain of folded mountains can be seen. From Bern on the plain of Switzerland the central chain of the Oberland is seen standing high above the subsidiary ranges. The Wetterhorn, Eiger, Mönch and Jungfrau, the Schreckhorn, Finsteraarhorn and many others, are seen as buttressed pyramids, no two entirely alike, yet all of forms so related as to create a visual harmony. The atmospheric perspective of the intermediate ranges imparts

the full sense of distance, and therewith the true impression of great magnitude.

On our way to these high mountains we pass Interlaken and then enter a gorge which leads through the last subsidiary range. This narrows and steepens in the Lötschenthal, down which courses a torrent fed by melting glaciers, and, from the frowning crags above, slender waterfalls descend. Finally, emerging from the gorge we reach the wide Grindelwald, a downfold valley extending right and left, bounded on either side by ridges which connect the subsidiary with the main range.

Reaching at last the very foot of the Eiger, which rises nine thousand feet above, the newcomer is sadly disappointed by the apparently moderate size of a mountain which seemed gigantic in the distance. The original impression is however regained, and indeed enhanced, on ascending even half-way up the opposite Faulhorn range. Turning and looking back from the Nothalden pastures and afterwards from the Waldspitz, the mountains of the main range of the Bernese Alps rise ever higher in the field of view. The lengthening, steep descent of the foreground draws the direction of vision downwards, yet without any sensation of the eye to tell the observer that his outlook is other than horizontal.

Beyond their outer wall the high mountains are crowned by the crystalline peak of the Finsteraarhorn. When the wind is blowing up and over from the south, this sharp peak often flies a white banner-cloud which, streaming out against the blue sky, is as decorative as any flag of heraldry.

The inner region of the high mountains, the goal of the pilgrim of scenery, is reached by way of the glacier that fills the trough of the narrow valley which cuts through the mountain wall. The ice comes over the steep, terminal slope of rock in the cascade called an ice-fall, a spectacular feature of mountain scenery. Ascending by the path of

lateral moraine the seracs, or jagged pinnacles of broken ice, stand out in their brightness, colour and fantastic form against the green pastures of the Grindelwald.

On entering the portal of the high mountains the view of a composite pyramid of pyramids, such as the Jungfrau seen from Interlaken, is exchanged for successive views of the constituent pyramids, each having a distinctive name, that of the whole mountain being now restricted to the culminating peak.

The institution of sleeping huts has long since brought the beauties of the highest parts of the Alps within reach of people of ordinary activity. The Schwarzegg hut stands above the icefall which divides the lower from the upper glacier where we reach the *névé* or consolidated snow. The silence of the night is impressive at the Alpine hut, for every glacial stream is frozen when darkness comes. The atmosphere at this altitude is so rarefied that Arcturus shines as steadily as a planet. Crossing the *névé* in the small hours of the night, with a lamp to guide our feet, and climbing the eastern ridge all is still in shadow when the rising sun illumines the peaks which crown the western ridge. Then the Eiger, Mönch, Fiescherhorn and Finsteraarhorn, flushed with crimson light, stand in majesty against the blue æther.

Of the picturesque grouping of high mountains a characteristic example is the triad Eiger, Mönch and Jungfrau as seen from the Kleine Scheidegg. Such mountains constitute the aristocracy of scenery.

(30) Very seldom does a single peak of the mountain range dominate the whole view, but this is so in the valley of Zermatt, where the peak of the Matterhorn is absolute monarch of the scene. To wander in the valley at all hours of the day and throughout the changes of weather is a continuous delight.

When we climb to the Riffelalp above the valley wall

many other peaks come into view. The Matterhorn peak far exceeds them all in magnitude, not from altitude but on account of the deep-cut saddles. The result is that the panorama of the snowy peaks is lacking in harmony owing to this disproportion. Thus the mere visitor to the village of Zermatt loses less than might be supposed from lack of climbing enterprise.

Passing on to the plain of Lombardy by the Simplon or St. Gotthard, the view looking back upon the Alps differs greatly from that of the mountains as seen from the plain of Switzerland. The southern side is more abrupt, the folding of the Alps being, as usual, unsymmetrical. Indeed the plain of Lombardy, we are told by geologists, is a downfold which constitutes part of the Alpine buckling of the earth's crust. Moreover, the mountains present a convex front to the plain of Switzerland and a concave front to the plain of Lombardy, so that the latter has a finer panorama. This can be viewed in perfection by ascending the marble roof of Milan Cathedral in time to see the sun rise upon the snowy peaks beyond a plain still shrouded in the dusky light of dawn. Looking north-westerly, the direction of Bern, a multitude of peaks fills that half of the horizon which confronts the eye. On the left is Monte Viso, one-hundred-and-twenty miles distant, then come Mont Blanc, the Matterhorn and Monte Rosa, which is the nearest of the mountains, yet seventy miles away. Last on the right is the Ortler group, distant one hundred miles. Each mountain pyramid displays both outline and projecting buttress, no two mountains exactly alike yet all of similar type, so that as the eye travels on there is a sense of rhythm no less distinct than that which music imparts.

(31) The peaks and glaciers on the west of Spitsbergen's main island, far up in the Arctic, are in a very different proportion from those of the Alps. Cruising round the branching fjords called Cross Bay and King's Bay a panorama of

peaks and glaciers is displayed. The glaciers descend to the sea and discharge from their foot miniature icebergs of lovely blue tints. Whereas the foot of a glacier emerging from a gap in the mountain wall of the Bernese Alps is but a few hundred yards in breadth, the ice rivers of Spitsbergen where they reach the sea are often a mile or more in width. *Per contra* the peaks of the Bernese Alps rise eight thousand feet above the emerging ice, but those of Spitsbergen only three or four thousand feet. In the High Alps the mountain is the main feature, the glacier subordinate. In Spitsbergen the glacier is the main feature, offset by narrow ridges of rock between broad ice streams of gentle gradient. Their winding course recalls the meandering rivers of the plain, and their flow is made apparent by narrow bands of dark moraine. These are ranged on either side close to the mountain ridges, and after the glaciers from two valleys have united, the right and left moraines join in one dark band which forms the central moraine of the united stream. Seen from on board a ship anchored near the shore, the panorama of glacial streams on the port and starboard side is a scene truly characteristic of the Arctic regions. Here, the fact that the glacier is a river of ice is apparent to the eye, not a disguised phenomenon revealed only by research and measurement.

Steaming north from Spitsbergen we come to the ice floes of the Polar Sea. In the open pack on the margin of the flow the tabular masses of ice heave slowly in the swell. The compact ice beyond is dimly seen through the misty air.

It is further west and, strange to say, much further south, that the ocean traveller sees the fleet of great icebergs sailing on the sea. The ship sailing from Quebec to Liverpool by way of the Straits of Belle Isle crosses the Labrador Current, which brings down these Arctic messengers. In height and peaked structure, they sometimes look like ships sailing in the misty air which marks the cold current from

the north. They come from the coast of West Greenland, where great masses break off from the glacier cliff which is thrust out to sea by the viscous flow of an ice-cap so thick that it covers the tops of mountains many thousands of feet in height.

(32) Of the surface forms left by erosion in lowlands, two are of special beauty, the suave undulations of the Chalk Downs and the open prospect of the Fen Country.

Chalk is soluble as well as friable, with the result that the convex curves do not terminate abruptly, as those of other soft rocks, but are continued in the rounded hollows left by removal of chalk dissolved in carbonated water. The final result, so well seen in southern England, is a rolling country with perfect continuity of curves. When this is left with its natural garment of green turf the form is restful and the sense of space stimulating.

That the Flatland of the Fens is a stimulating scene is a universal experience, yet one which nobody would expect, least of all those brought up among the hills. Of the effect upon a mountain dweller the present writer received convincing evidence when travelling by train through the Fen country near Ely. In the railway carriage was a Highland gamekeeper on his first journey to the South. He was as much thrilled by the sense of space as a newcomer to the mountains is thrilled by the sense of height. "Whichever way I look," he said with delight, "there is nothing to interfere with the view."

The reason for this sense of spaciousness is very curious. The horizon is not really far away, neither is any considerable angle added to the sky by the absence of such slight elevations as are common in the undulating lowlands which border on the Fens. The perfectly flat land, however, does not satisfy the eye as half the proper field of view, and so unconsciously (as I have often verified) the plane of outlook is tilted so much upward that the sky-view is enormously

STANDING STONES, Arran





THE ARCH OF MARIUS, Orange



increased. It is thus that the stimulating sense of space is received.

(33) The Scottish Highlands, with rocks of gneiss and schist, are an undulating plateau. The view from the heights is mostly monotonous. The attractive features are the glens. These steep-walled valleys are traversed by winding streams with green pastures by their side and passing through small lochs. Of the features which come within the category of mountain scenery the most notable are the corries, concave curves of rocky crags above the head-waters of brooks. The great Glen Affric, an outstanding example of this type of scenery, should be constituted a national park, for, unless such reservation be made, valleys are much more subject to residential and industrial development than mountainous regions. In England, indeed, scarcely any steep-walled valleys, except perhaps the mountain-limestone valley of Dovedale on the border of Derbyshire and Staffordshire, remain in their natural state.

(34) The forest is not the only cathedral of Nature, for limestone caves have gleaming white columns of stalactite and stalagmite. Although caves have no longer the attractive mystery of primitive times, yet modern man has more opportunities for the admiration of their beauty, which can be displayed by electric light. In the Jenolan caves of Australia and many others these architectural recesses of the underworld can now be explored.

(35) Bordering on the fertile valley of the Nile the Eastern Desert of Egypt, with huge scarped forms of bare rock, has a stern beauty which kindles awe. Was it not indeed in desert scenery that prophets of old sought inspiration?

In other parts of the Egyptian deserts are forms of accumulation in complete contrast with those of ablation. In the desert of northern Sinai are great sand dunes, smooth and bare of surface, with stream-line form to windward,

eddy curves and steep, slipping slopes upon the lee side. By day the winds of the desert drive sand in spray from the crests, but in the stillness of the night the air is freed from haze and the sun rises in a calm atmosphere of perfect clearness. Then the steep sand ridges throw shadows as sharply outlined as those of the lunar landscape seen through a telescope, and the bold forms of the dunes, unmarked by any detail to show the actual scale, have the apparent magnitude of mountains.

(36) The people of Britain seldom realize how marvellous is the impression of the snow scene upon those who have been brought up in the lowlands of the Equator. Moreover, in our country we do not see the complete transformation which the snowfall brings in colder countries of about the same latitude. This is well illustrated, though in different ways, in the subsidiary ranges of the Alps and the wind-swept prairies of central Canada.

At Glion above Montreux a week before Christmas the sky was covered with a thick cloud of dark, neutral grey, beneath which the green pastures no longer appeared attractive, and the waters of Lake Geneva lay dull and leaden. Then, at last, the snowfall began. Day after day the flakes came settling down until the evergreen forest and the pastures were covered in a white mantle. At first the mountains were hidden, but when the cloud screen thinned their peaks were seen looming through the wandering flakes. By this time, a week after the beginning of the snowfall, the scene was no longer gloomy, for, although a monochrome, the harmony of grey and silver was of cheerful brightness. Four days later the snowfall ended, there was no longer a canopy of cloud, and forest and mountain were displayed against a curtain of blue sky, deeper in colour than that of the Alpine summer. Then the peaks above Les Avants were seen not swathed but closely clad in a white covering which perfectly displayed their

rocky form. This marvellous sight endured but for a day, and then the snow began to slide from the steep slopes.

At Wengen in the Bernese Oberland during January, a month of settled fine weather in the upper Alpine valleys, the colour of shadows on the snow is seen perfectly in the fir forest where the eye is shielded from excess of light. The shadows have a depth of blue verging on violet, and yet so luminous that one scarcely knows whether to regard the appearance as the shadow of a tree or a reflection of the sky.

(37) Very different is the scene on the open prairies of Manitoba, where throughout a winter of intense cold the snow is winnowed to the consistency of fine dust, which, drifting in the wind, forms waves which can be seen progressing steadily before the blizzard. Much of the fine dust drifts above the plain as the salt spray drifts above the waves in a storm at sea. High up in the sky are minute icy spicules belonging to the region of clouds, and these have optical properties which give rise to mock suns, circles and crosses, all arranged in patterns so geometrically perfect that they delight the mathematician.

Passing on westward from the prairie we find a complete contrast of snow scenery in the Selkirk Mountains of British Columbia. In this still climate the moisture of the air from the Pacific Ocean condenses in huge snow-flakes which settle down so closely crowded that they seem almost to fill the air. Temperature rises so greatly with this condensation that the flakes are of the clinging kind, with the result that wherever their fall is arrested they form overhanging eaves of snow which are bent down by their weight. Near Glacier House station at the Selkirk summit of the Canadian Pacific Railway, thousands of the great fir trees were felled for the building of the railway snowsheds, leaving high stumps with round table-tops some three feet in diameter. On each of these a thick snow cap formed with projecting and overhanging eaves, the diameter of the cap nine feet,

the appearance of the tree stump and its covering being that of a giant mushroom. Never before had the world seen such a mushroom field. Above these curiosities of scenery stood the tall slender fir trees with drooping branches which are not broken by the snow, the whole picture framed by a complete encirclement of glaciated mountain peaks which, flushing pink in the light of the setting sun, brought the crowning beauty of the winter day.

(38) Waters locked in by land which range in size from pond to inland sea have various characters of beauty. The outlook of the shore of Lake Superior scarcely differs from that of the sea coast, and, when storms arise, breakers of no mean magnitude burst upon the shore. Thus these great lakes, although they have pleasing aspects, do not add new beauties.

An alpine tarn and a pool in the forest are ornaments in mountain and woodland scenery, the latter especially in autumn when the golden colour of the foliage is enriched by the polish imparted by reflection in still water. It is, however, inland waters of intermediate size which provide a more important contribution to beauty, and those among the mountains take pride of place because the waters and their landscape setting are well proportioned. Among these may be counted the Alpine lakes of Switzerland and Italy and those of the Rocky Mountains in Canada.

Looking from the Swiss shore of the *Haut Lac* of Geneva there is a water horizon on the west so that there is some likeness to an inlet of the sea, but it has the distinctive charm so well expressed by the standard phrase, a "placid lake." Looking across from Vevey or Montreux the expanse of water is nearly as great as that visible from a sea shore. Beyond rises the serrated range of the Savoy Alps, mountains which being thus based upon the level shore-line stand up not as mere peaks but complete pyramids. There is no landscape of "middle distance," and the mountains harmon-

ize in tone and colour with the water and the sky against which they stand silhouetted.

Ascending the steep slopes above Montreux as far as Glion, and looking once more across the lake, the effect of additional elevation is entirely contrary to that obtained from heights which overlook the open sea, for the waters are now robbed of the impression of spaciousness which was received when they occupied the foreground of the view.

Passing on from the valley of the Rhone to that of the River Aar, we come to the associated lakes of Brienz and Thun. These are divided merely by an alluvial delta where the town of Interlaken stands, but, although originally one, the upper and lower lake are of different type. The Lake of Brienz, eleven miles long and one-and-a-half wide, is situated in a longitudinal valley, a down-fold of the land which follows the junction of two geological formations. The Lake of Thun, ten miles long and two miles wide, lies almost at right angles to the Lake of Brienz, and the valley which it occupies is cut across the mountain ranges, reaching to the plateau or plain of Switzerland. Thus the lakes differ in the character of their scenery. The shores of Brienz are steep, unbroken mountain sides. Their aspect is not without grandeur, but lacks variety and is somewhat gloomy except in bright sunshine. The shores of the Lake of Thun present on the contrary a varying picture, which is well seen from the steamer which plies between Thun and Interlaken. The voyage is very pleasing in either direction, but the effect is more impressive when approaching the mountains from the plain, passing from the gently sloping shores at Scherzliggen to the steep crags beyond Beatenbucht, which are mirrored in the still waters of the lake.

Looking across the lake from Oberhofen or Gunten on the northern side, the picturesque aspect of the opposite shore, only two miles distant, differs essentially from that observed when looking across the Lake of Geneva from

Vevey or Montreux. The charm of atmospheric tone is now exchanged for the pleasant detail of wood and field. Above these rises the jurassic Stockhorn range which takes its name from a slender peak of which the culmination is on one side actually upright. Once when looking across the lake at eventide its "stock," or post-like form, was demonstrated by a singular event. The crescent moon descended behind the peak and then emerged from the steep side before its final setting beneath the shoulder of the mountain.

The snowy peaks Schreckhorn, Eiger, Mönch, Jungfrau, and others, rise above subsidiary ranges, and the picture which they all present demonstrates the integration of a mountain background by the shore-line of a lake. This is an even stronger boundary than the sky-line, and by its re-entrant curve unites the surrounding features of the land.

(39) In the Western Highlands of Scotland the lakes, or "lochs," are an important decoration of the scene. Those situate in longitudinal valleys are impressive in their solemnity, but for variety and cheerfulness are excelled by the lochs of transverse valleys carved through rocks of diverse substance and structure. Of these Loch Lomond, the largest, and especially attractive, is so situate that it provides a resort of natural beauty for the crowded population of Glasgow city.

Although the Highland lochs have a lofty surround, the heights have not the form of mountain peaks. The additional beauty of this form occurs in the English Lake District. This detached dome, midway in the island of Great Britain, combines mountain peaks like those of Welsh Snowdonia with lakes of size similar to those of Scotland, and to these are added the arcadian charm of the English country-side and its rustic architecture. The district is of precisely the dimension suited for the residence of the country Rambler.

The mountainous dome was once ice-capped, and the

glaciers, which have left a record in rounded rocks marked with striations, radiated in all directions. Their paths are now valleys traversed by streams and partly occupied by lakes. Those such as Windermere, Derwentwater and Ullswater, which are cut through both the volcanic core and the surrounding frame of sedimentary rocks, have variety of form. Moreover, the scenery of the district has a special and unusual variety due to the radial arrangement of the numerous lakes whereby the direction of light and shadow at each hour of the day is related differently to the form of each lake, as can be especially noted by comparison of Windermere and Derwentwater.

In one important aspect the English lakes surpass those of the Alps, their waters, free from the silt of glaciers, being crystal clear. Wordsworth pointed out in his *Guide to the Lakes*, a standard treatise in the science of scenic beauty, that “. . . in autumn . . . this season of stillness . . . while looking on the unruffled waters . . . the imagination . . . is carried into recesses of feeling otherwise impenetrable.”

Trusting fully in Wordsworth's insight, I stayed on at Glenridding on the shore of Ullswater waiting for the stillness of the autumn days. At length the wooded slopes of Place Fell and the islands half-way across the lake were mirrored in the still water, with all the beauty of their autumn colouring; but things were not altogether as in the reflection of a small pool. Here and there a slight breeze touched the surface of the lake, the reflection of the trees was drawn out and barred across by lines of light for a few moments. Then complete stillness returned and every form was once more mirrored in perfection. Waiting and watching the silent and mysterious changes in the mirror of the lake, the mind passed from conscious observation and entered a new world and regions unknown. When the mind returned to ordinary things no clear account could be given of what was seen or felt during the moments of trance, yet

there remained the impression that another world had been revealed.

(40) The main watersheds of Eurasia and the Americas are so situated that on one side the rivers reach the sea in a short, swift course, whilst on the other the long rivers exhibit all varieties of flow, of which an account will now be given.

In the high mountains a torrent emerges from the foot of the glacier and rushes down the valley buffeting along the rock-strewn bed. Tributary streams fed by melting snow come down the steep sides of the valley. Coursing through the green pastures their lines of flow are patterned with bright stripes due to the foam bubbles which follow each other so quickly that they appear to coalesce. Here and there a rocky crag juts out on the side of the valley and a stream from the upper "alp," leaping the edge, comes down in a slender waterfall half dissipated in a cloud of spray before it reaches the lower pastures which fringe the main torrent.

(41) The passing of a river from the plateau to the plain is perfectly illustrated by the river Niagara, in which a waterfall, rapid and whirlpool, all on a great scale, succeed one another in the course of a few miles. The first rapid is above the fall, so that the water is already flowing swiftly when it reaches the brow of the rocky cliff over which it sweeps majestically in a smooth, unbroken curve. Descending with the increasing swiftness which the force of gravity imparts, the sheet of falling water thins out and breaks, thereafter descending in foaming masses which discharge with repeating thunder on the broken rocks below. The broad, deep pool which receives the waterfall is patterned with scrolls of foam where whirling masses of upwelling water meet. Beyond this comes the "Whirlpool Rapid" where the river makes a bend, unusual in rapids. At the elbow of the rapid the tumult of waters is truly to be classed among the wonders of the world. The standing waves due to

resistance, stretching diagonally from either bank, overlap each other in the centre of the stream, forming great mounds of water, stationary except for a slight, swaying movement. The curve of the gorge produces simultaneously a circulating flow which strives for mastery with that of undulation. Thus no steady régime is possible, and every few moments travelling waves dash off from the banks and clash in the middle, causing the great standing waves to burst and fly upwards in clouds of spray.

This rapid discharges into a great pool. The swift current is carried on by momentum past the neighbouring exit, and circles round. The high cliffs of the plateau afford a complete picture of the movement of winding water in the great whirlpool. Here and there some floating object, it may be a tree fallen from the bank, can be seen approaching the suctional centre of the pool, and on reaching the fatal spot is drawn down, disappearing in the depths.

The water of the whirlpool finally escapes by diving beneath the inflow, beyond which it wells up with scrolls of foam and dashes down the last rapid, which leads in towards the still waters of Lake Ontario.

(42) The winding course of a river that makes its way across the alluvial plain, a ribbon of light offset by verdant background, is the most perfect example that natural scenery provides of the sigma curve which Hogarth defined as "the Line of Beauty." This feature in the world's morphology has a great range of scale. The Thames is of the medium size, and the celebrated view from Richmond Hill a fine example of the beauty of a winding river. The Mississippi is the most perfect example of a winding river on the grand, continental scale. For the English traveller it is an unforgettable experience to look out over the broad Mississippi from the height of the Indian Mounds near St. Paul and Minneapolis and behold a scene recalling that from Richmond Hill but greatly magnified.

Rivers of the alluvial plain owe their beauty, not only to the elegant curvature of their course, but also to the variety of flow. This aspect is best seen in smaller streams, such as the River Axe where it enters the green meadows of East Devon. Beneath the miniature cliff carved out on the concave bank is a deep pool of quiet water. From this the current flows rippling over stony shallows across to the low, convex promontory of the opposite side, and all the time the murmur of the stream brings that tranquillity of mind which helps the eye to appreciate the beauty of the scene.

(43) In the wide reaches of the Severn estuary the currents of ebb and flow establish their own channels, so that Nature is successful in avoidance of conflict; but on approaching the bend where the channel quickly narrows the ebbing current and flood tide contend, and the "first rise" becomes a steep-fronted wave. Some three miles above Awre Point, a low promontory which marks the bend, there is a perfect view-point for this phenomenon, the churchyard of Newnham-on-Severn, which crowns a cliff on the margin of the river. After new or full moon near the equinox of spring or autumn the tidal bore comes in the morning and evening. In the distance beyond Awre Point the steep front of a crested wave stretching across the channel between sandbanks can be seen advancing steadily. On reaching Awre Point it wheels round in manner as orderly as that of a line of marching troops, and soon the sound of over-falling waters breaks the stillness of the country-side.

In the narrower, well banked, reaches of a tidal river the bore increases in height and is no longer a solitary, or almost solitary, wave but a group, of which all the members keep station as they go, with none of the elusive changes which occur amongst deep-sea waves. Such is the group which constitutes the Eagre of the Trent, seen in perfection at West Butterwick, eleven miles above the outfall where the

river enters the Humber estuary. Here the villagers, both young and old, congregate in due time, for "a good Eagre" is a sight which never palls. The first crested wave, some five feet in height, is followed by steep, rounded swells, closer together than sea waves of such height would be. The group passes in thirty seconds, travelling on for many miles through a quiet country-side far away from any tidal shore.

Such also are the tidal bores of the River Seine and the Petitcodiac on the east coast of Canada. On the Chinese coast the phenomenon is displayed upon a grander scale in the estuary of the Tsien-Tang between Hangchow Bay and the port of Hangchow. The "Hangchow bore" is a wall of water eleven feet in height stretching all the way across a channel one mile in breadth and travelling at the rate of twelve knots.

CHAPTER THREE

NATURAL VEGETATION AND WILD LIFE

(44) Entering the wood and progressing until the trees become a complete environment, we view one of the main types of the world's scenery. The constituent forms may be of one kind or another, the columnar pine, the broad oak with square-elbowed bough, beech trees with spreading roots and suave lines of trunk and branch, and, in the tropical forest, the palm tree with its great fronds. The beauty of the woods has evoked charming descriptions both in poetry and prose, but "Nature's Cathedral" owes much of its charm to a subconscious effect upon the eye, which seems to have escaped the attention of descriptive writers. Such knowledge as I possess of this important aspect I owe entirely to first hand observation. Accustomed to resort in hot summer weather to the grateful shade of neighbouring woods of oak, or beech, or pine, some of them with coppice growth, I had no feeling that the view was cramped or confined. Thus my desire to learn the actual distance of the woodland screen was merely the urge for measurement which is inherent in the scientific mind. I found the distance to be just over one-hundred-and-fifty feet. Thus if the intervening trees and coppice were cleared, one would find oneself in a circular space of about three hundred feet across, surrounded by a screen of about fifty or sixty feet in height. Substitute a wall of rock for the screen of trees, and the scene would be like that in a quarry or a small "cock-pit" of dolomite limestone. In such environments one would certainly feel "shut in." How is it, then, that the wood is free from this defect? The explanation is the stereoscopic effect of trunks and boughs and slender shoots. The "solid geometry" thus acquired greatly enhances the sense of

distance. This effect, as already noted, is also to some extent imparted by mist, but the absorption of light by mist makes objects look flat, whereas the shadowing of trunk and branch maintains the third dimension of the objects in the wood. Thus, as so often happens, the satisfaction of the mind is due to the personality of the eye.

(45) In the Temperate Zones, the foliage of deciduous trees records the round of the four seasons. In continental climates, spring and autumn are short, but in lands which face the west winds of the ocean these seasons are prolonged. In southern England, with its insular climate, the seasons of tree foliage precede the four astronomical seasons of the year. Thus we are accustomed to think of March, April and May as the months of spring, not the slightly later period from the Vernal Equinox to the Summer Solstice, or longest day.

The unfolding leaves of spring have the beauty not only of colour, but also of translucence, an effect especially delightful in the recesses of the wood. As the spring goes on, the leaf deepens in colour and becomes more opaque, but the foliage of each kind of tree has its own time of unfolding, and so, when looking from without upon the various foliage which is characteristic of the English woods, we see a pattern of harmonious green tints of which the full chord marks the culminating beauty of the trees in spring.

The next period of outstanding woodland beauty is that of autumn colour, first green and gold, then green, gold and bronze. Golden yellow is a colour of great cheerfulness, and all whose minds are in communion with the natural scene are not downcast by cloudy days in autumn, as the foreground is decorated by the golden leaf. Within the woods, where there is least illumination, the gold and bronze of bracken below makes the cheerful environment of autumn colouring complete. In spring, on the contrary,

the cheerfulness of foliage is dependent upon sunshine.

The time when the trees are losing their leaves is the second half of autumn, which in southern England may be reckoned to begin at Martinmas, which we now call Armistice Day.

Winter is the season of bare boughs. These contribute most to the beauty of the scene when their tracery is silhouetted against the rosy sky of a clear sunset. Throughout the winter day we owe much to the evergreen foliage of the pines, especially during the hours of early morning and late afternoon when the low sun suffuses their background of sky with golden light. The perfection with which the brushes of dark-green foliage are thus offset was recognized by those artists of Japan who decorated the sliding screens of the Shogun's palace in Kyoto with frescoes of pine trees backed by gold leaf.

From time to time in the coldest months, the sunshine of a winter morning lights up the hoar-frost that has formed during the night upon the trees, making, as it were, an artificial foliage. The more slender the shoots the thicker the rime, and so in frosty weather the silver birch is queen of the forest.

(46) The change from the scenery of deciduous trees on the Atlantic shores to the evergreen foliage of the Mediterranean comes suddenly upon the traveller who takes the express from Paris to the Riviera, and crosses the divide during the night. When daylight returns, the train is gliding down the valley of the Rhone where the evergreen olive first appears. On reaching the Riviera, with its sheltered slopes between the Alpes Maritimes and the sea, ancient olives can be seen, with all the picturesqueness of broad, twisting trunk and spreading bough, standing upon a terraced hillside cultivated from antiquity. The actual colour of the small dense leaves is as much blue as green, and thus harmonizes with the deep blue of the sea and sky.

To the beauty of form and colour is added the charm of a scene of quiet industry during the harvesting of the olive berries.

(47) Africa is the only continent which is symmetrically placed with respect to the Equator. Crossed centrally by the tropic belt, it extends both north and south to the climate which we call "Mediterranean." A wonderful succession of trees which display various types of beauty can be seen within easy reach of ports of call. On the voyage down the west coast, after passing the narrow belt of Mediterranean vegetation and the broad desert of the Sahara, we come to the belt where tropic sun and slight rainfall result in the savannah. This is the transitional region between desert and forest, a country of permanent grazing. A few miles inland from the port of Dakar this type of scenery is reached. Here the grassy plain is embellished with great baobab trees, not clustered together in a woodland, but standing in dignity apart. The baobab is a tree of enormous girth with a crown of twisting branches, as thick as the trunk of an ordinary tree. It has long been the custom to describe the savannah as park-like scenery, and following this indication we may compare the impression produced by the sturdy baobab with that of the ancient oaks in Windsor Great Park.

Further south at Freetown in Sierra Leone, the savannah is succeeded by open forest, where the giant silver-cotton tree is supreme. The widely-spreading roots not only grapple with the ground, but rise as buttresses supporting the tall tower of the tree, which rises far above all its neighbours of the forest.

(48) Landing at Takoradi on the Gold Coast, within five degrees of the Equator, and going inland, a dense tropical forest is reached in a few miles. Here palm trees grow so closely that they shut out the sky. The green undergrowth is almost impenetrable, but here and there a narrow, winding

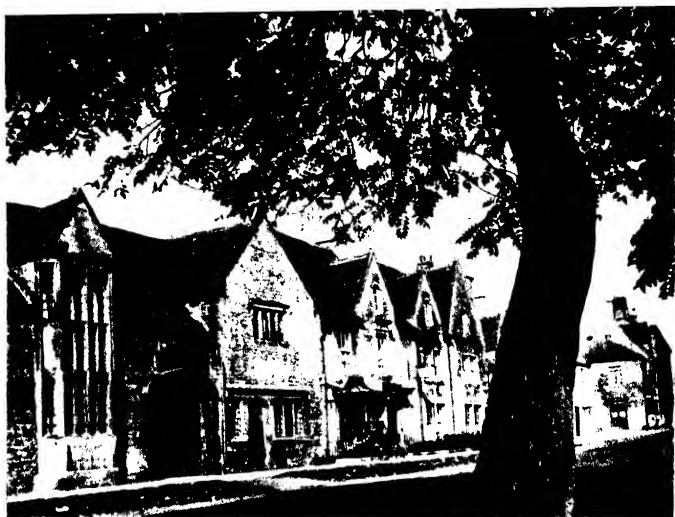
footway leading to a native village provides the entrance to a forest scene of novel appearance, yet with an atmospheric fragrance familiar to those who have visited the warm, damp palm house of Kew Gardens.

South of the tropic belt is the High Veldt of the Transvaal, and here, especially around Johannesburg and Pretoria, the flora of the dry climate has been decorated by the introduction from Australia of the lofty eucalyptus, which gives the forest of the Island Continent its distinctive character. The large leaves of greenish blue have a tint which harmonizes with that of the sky. So rapid is the growth of this giant tree that in the Transvaal their slender, sinuous trunks have already reached the height of more than a hundred feet.

Between the latitude of the Transvaal and the Mediterranean climate of the Cape Peninsula, the landscape of Natal is decorated by the acacia thorns with spreading boughs of zigzag shape, culminating in a broad top which is nearly flat. Remarkable in form, although of no great size, these "umbrella" thorns make a decorative feature for the foreground of a wide landscape. A perfect example of this combination is provided by the well-known beauty spot at Drummond, between Pietermaritzburg and Durban, which commands a view of "the Valley of a Thousand Hills." This endless succession of mountainous forms, reaching away to the blue distance, is perfectly offset by the contrast of the spreading thorn.

The trees and heaths of the Cape Peninsula in their form, tone and colour are reminiscent to the European traveller, who might feel as if he were back on the Riviera if he were not reminded of his arrival in the Southern Hemisphere by the novel experience of seeing the morning sun climbing up towards the left hand.

Looking from the height where the Rhodes Memorial stands, the "umbrella" pines with their dense foliage make



CHIPPING CAMPDEN, Gloucestershire





RUFFORD OLD HALL, Lancashire



PACK HORSE BRIDGE, Bakewell

a perfect middle distance for the serrated crest-line of far-off mountains beyond the level plain. Thus the grouping of tree, plain and mountain recalls that which artists for generations past have recorded in Italy.

(49) The island of Singapore off the southernmost point of the Asiatic continent lies close to the Equator, and a daily shower of warm rain maintains vegetation in marvellous luxuriance. The mangrove, which grows out in the salt water and drives back the sea, displays in branches and roots a double symmetry recalling the appearance of an object and its reflection.

If the wayfarer inland brushes against the sensitive plant which fences the road, this not only shrinks back where it is touched, but sends a warning on ahead, so that the bush retreats in time to avoid the coming danger. Thus at the Equator there seems no marked division of consciousness between animals and plants.

Whether the voyage from Europe be towards East or West, the vegetation seen in the tropics is of the same general character, not differing markedly as do the forests on the east and west of continents in the North Temperate Zone. Approaching the Caribbean, the traveller who lands at Port of Spain in Trinidad breathes fragrant air which evokes a change of mood after the salt breezes of the ocean, and predisposes the mind to the contemplative enjoyment of beauty. In the bamboo grove a grass is seen growing to the height of a tree, and in the savannah, on the borders of the town, great trees spread their shade more widely than would be possible in climates where boughs have to bear the weight of snow. The shape of wide-spreading boughs in the tropics and elsewhere shows an adjustment between the force of gravity and strength of wood. The boughs of the cedar are too stiff to bend, those of the horse-chestnut and other trees, of which the wood is supple, droop in the middle, but rise up at the end where the new

shoots grow, so that the complete form attains the beauty of the sigma curve.

Near the mouth of the Magdalena River on the coast of Colombia, the shore is fringed with palm trees, and above them rise the snowy peaks of the Santa Marta range, an unsurpassed illustration of the vertical distribution of climatic zones.

Among the marvels of tropic growth in the forests of Panama are the twisting lianas which climb up the stiff trunks of the great trees which they overtop, reaching the sun's rays that come down from the zenith. Side shoots hang in decorative festoons between the trees to which the lianas cling.

On the north shore of Jamaica near Montego Bay, the Trade Wind blows refreshingly, and the waves come foaming over the coral reef. The low shore is fringed by the graceful forms of the cocoanut palm, the tall, slender trunk crowned by spreading fronds which bend and rustle in the breeze, a tree beautiful in itself and offset by the background of blue waters. At close of day the great fronds of the cocoanut palm can be seen even from a distance in dark purple silhouette against the crimson sky.

South of the Blue Mountains, the ferns attain tree-magnitude in the sheltered gully, but the aspect of vegetation most wonderful to those who visit the Linguinea Plain is the brilliant flowering of many kinds of tree at all times of year. The poinsettia, as broad-spreading as the English oak, is crowned in red and green, the flowers and leaves making a perfect pattern. Conspicuous among the flowering creepers are the festoons of purple bougainvillea. Thus in the heat of the tropics bright flowers seek high places, whilst the carpet of the hot ground is left coarse in texture and deficient in the delicate beauty of the tiny flowers, which are the delight of spring-time in a temperate climate.

(50) In Britain the flowers of trees are mostly of a greenish

tint which adds nothing to the decorative effect of foliage, but in the pink almond blossom we have a tree-flower which is seen to special advantage, for its position on a bare bough makes the silhouette against blue sky more effective than that of blossoms with which green leaves compete for the attention of the eye.

In the slow on-coming of the spring, the snowdrop appearing shyly is welcomed as a harbinger of more cheerful days, and when the sun is regaining warmth the grassy banks are decorated with the yellow primrose, whose beauty is enhanced by the perfect relation of its colour with that of the green background. In the spring-time decoration of our woods, the carpet of bluebells is unsurpassed. In summer, when the wild flowers of woodland and meadow are no longer at their best, the moorlands of the North enter upon the season of their glory, ling and the bell-heathers spreading a broad carpet of pink colour which, having a bluish tinge, harmonizes with the sky above, and especially with the dark purple of rain clouds. Such accidental harmonies of independent features are prime factors in the beauty of natural scenery, giving rise to enjoyment of which the subtle origin escapes general recognition.

In the Riviera spring, when the atmosphere is not warm, but of perfect limpidity, the sunshine has some special quality which stimulates the flowering of plants, a quality perhaps derived from ultra-violet rays. In the villa gardens the same varieties of plants which we grow in England have a very different proportion of blossom to foliage, the flowers massed together with great enhancement of beauty.

In Alpine valleys, such as that of Zermatt, the flowers of the dandelion are so closely clustered that the meadow is not green, but yellow. On the higher slopes above the Riffelalp flowers are in less profusion, but in this rarer and clearer atmosphere they attain perfection of colour. Here bell-gentian and star-gentian, growing on the spare pasture

with blossoms closely clustered, are of a purity of blue that cannot be surpassed. At greater heights, growing here and there in small patches, the edelweiss, with a white, radiating flower of snow-like surface, has a special appeal as symbolic of the Alpine region.

(51) Animal life comes first in the late Lord Avebury's book on *The Beauties of Nature*, but is not included in his work on *The Scenery of Switzerland* or that on *The Scenery of England*. Neither is wild life mentioned in John Marr's *Scientific Study of Scenery*. The definition of scenery as given in the *New English* (or *Great Oxford*) *Dictionary* is:

"The general appearance of a place and its natural features considered from the picturesque point of view."

Although animals are not constituent features of the landscape, they are often an important element in the general appearance of a place. The relation of their form and movement to the landscape background can, therefore, be properly included in the study of scenery as defined in the standard dictionary of our language.

(52) In mild winter weather heralding the approach of spring, midges appear in a small crowd and dance out their little day in the mellow sunshine. Unlike mammals and birds, they take no notice of the neighbourhood of man, and so we can stand near by and watch movements which convey the impression of existence free from care. Later in the year the wandering butterflies and droning bees passing from flower to flower make a perfect picture of the relation of life to habitat.

For exhibition of powers of flight the dragon-fly takes pride of place among insects, poised steadily on vibrating wings and then, it seems by partial cessation, darts sideways suddenly with such velocity that no human eye can follow the movement.

In the balmy tropic night fire-flies flit like wandering

stars, whilst the hum and whir of unseen insects makes restful music.

(53) The humming bird combines the beauty of form and colour proper to birds with a mode of flight which we are accustomed to associate with insects. When the little creature, in no way shy, is poised on vibrating wings before the honeyed flower, it is indeed an object of beauty.

Nature's habit of camouflage does much to render animals inconspicuous upon the land, but the form and movement of birds in flight are seen with the advantage of a plain background.

In spring-time migrant birds make our woodlands musical, and the swallow and swift bring beauty of movement to the sky. Each has its own plane of flight, as well as its own fashion of twist and turn, which much resemble two ways of dodging by three-quarter backs of different build in "Rugger" football. Of land birds, the *falconidae* are among the greatest masters in the art of flying. The eagle has such spread of wing that when soaring among the high mountains the form seems in harmony with the large scale of its background. Of all the falcons, none provides a more spectacular episode than the osprey. Hovering high above the lake it spies a fish beneath the water, and, closing its wings, drops from the zenith as a falling star. The wheeling peregrine displays the graceful movements of a long-winged falcon's flight. Of the short-winged hawks, the kestrel, hovering above its hunting ground, is an attractive object.

The manœuvres of birds in flight reveal the upward currents of the air. When the wind blows shoreward from the sea the gulls come flapping towards the cliff, above which, supported by the invisible billow of the air, they sail with steady wings. From time to time in the vicissitudes of weather, there are uprising whirls of air, miniature cyclones which drift onwards with the wind. To enter these

is one of a bird's recreations. Above the chalk downs and elsewhere one may watch rooks flying in from all directions to join comrades who are already wheeling in the upward spiral. Even more spectacular is the result of intense whirling motion of wind ascending a steep gorge from the shore of an Alpine lake. The choughs which come flying in are wheeled up and can be heard chuckling even when carried out of sight.

Looking from the shore, the sea-gulls flying to and fro, add to the white pattern of foam and cloud upon the blue background of sea and sky. During an ocean voyage episodes of flight add to the picturesqueness of the scene, as when the stormy petrel skims the rising waves. Most majestic of all is the albatross sailing, as it seems for ever, on widespread wings.

It is by their nests that birds make a contribution to the fixed features of scenery. In our sea-cliffs are the nests of gulls and cormorants, the solitary raven, and jackdaws in colonies. Thus the cliffs are a city of refuge for the feathered tribe, a fact which adds greatly to the charm of their scenery. In our homeland the nests of little song-birds are beautiful. Goldcrest, goldfinch, long-tailed tit, and others, lay their delicate eggs upon a soft cushion within a protective and warm enclosure. When the eggs are seen in their nest, and the nest is seen in its setting of boughs and foliage, the grouping makes a natural harmony of unfailing charm.

(54) The greater species of wild mammals comprise many types of beauty; deer and antelope, lion and leopard, and the rhinoceros which is unsurpassed as a symbol of strength. Owing to the shyness of some species and the savagery of others, these splendid creatures have little to do with the scenery familiar to mankind in general. As things are at present they are seldom seen except in zoological gardens. Big-game shooting has now become too destructive, especially as it is the heads of rare species which are the

most valued trophies. Whereas buildings destroyed in war can be reconstructed, no power on earth can bring back any species which has been exterminated. The movement for the constitution of Nature Reserves has originated only just in time. Here, especially in the African Reserves, it is possible for the traveller to see some of the beautiful species of great mammals, as, for instance, the giraffe, in their natural setting. It is to be hoped that the practice of establishing Nature Reserves will be extended to every country for the protection not only of the greater but lesser species, and of birds as well as mammals. This is urgent in a country so populous as Britain, where, however, there is much suitable space for the purpose in the West Highlands of Scotland.

CHAPTER FOUR

THE SCENERY OF CIVILIZATION

(55) The great capital cities, as the derivation of the term implies, are headquarters of civilization. Here the historic forms of architecture are collected, and from these centres they spread far and wide, so that the capital city is both a focal and radiant point of architecture. Thus the geographical distribution of important architecture is mainly radial, in spite of the influence of climatic zones upon the spread of civilization.

Before proceeding to the illustrations provided by surviving capitals, a brief reference must be made to the architecture of civilizations past and gone.

(56) Megalithic monuments illustrate the civilization of days which kept no written record. Their distribution along the routes of coastal navigation provided Elliot Smith with material for a remarkable theory of the path of early civilization. Of these monuments England has a picturesque example in Stonehenge where, circle within circle, huge, upstanding monoliths have lintels which are likewise of single stones. Inside the great circle is a horse-shoe of trilithons of which the opening faces the rising sun of midsummer, the direction marked fore and aft by single stones beyond the surrounding circle of an earthen embankment. When standing within the monolithic enclosure the horizon of the open, chalk downs conforms visually with the strong lines of the structural foreground, so that we seem to stand at the centre of a circular world. The structure of Stonehenge shows that the most important point of the horizon was considered to be that from which our ruling orb, the sun, climbs highest in the heavens. The nature worship of these primitive times, apart from the

cruel practices then associated with religion, has a strong appeal to the Modern Man of culture, by whom Nature is no longer regarded as mere mechanism, as was the fashion of mid-Victorian times.

(57) The scenery of past civilizations has left relics in many countries. In Central America and the East Indies ancient architecture is hidden in the dense jungle of damp tropics. In the dry climate of Iraq the palaces and temples of Chaldæa are now lost through the crumbling of their sun-dried bricks. In Egypt, however, the combination of an enduring stone and a desert climate has preserved a supreme example of both the architecture and sculpture of a great civilization past and gone. The homes of the community, indeed, no longer remain, but the mausoleums, temples and colossal statues are still in marvellous preservation. The Pyramids of Gizeh, although impressive in magnitude, are not decorative in form, yet there is one accidental contribution which they make to the beauty of the scene, for when viewed from a distance at sunset the contrasting colours of the sky are reflected from their peaks. In the pillared temples of Thebes, the capitals of columns are of outstanding beauty, and colossal statues in the open country have a dignity of countenance which equals, if indeed it does not surpass, that of Greek sculpture.

(58) In Rome and its environs classic architecture is still displayed; columns derived from Greece, round arches of Roman origin, and, in the Pantheon, the dome, which is an arch spread out in every direction.

The impression produced by Rome upon a traveller arriving from Britain is not so much that of a foreign city as of the historic capital of all the countries of western Europe. The pillared portico supporting a pediment which forms the entrance of the Pantheon, is derived from the architecture of Greek temples. These, as can still be seen in the Parthenon of Athens and the temple of Pæstum in

southern Italy, were oblong buildings with pitched roof supported by stone columns with ornamental capitals. The projecting cornices cast strong shadows in sunny southern climates, an effect which is lost in northern latitudes. The complete form of the temples has not been copied, but the gabled end with its supporting pillars has been widely adopted as an entrance portico for important buildings. This type of entrance has been transmitted from Rome and may be seen in many capital cities. In London there is the Royal Exchange. On comparing the inscriptions on this building and the Pantheon the identity of Latin characters impresses the historical connection. Other similar porticoes in London are the entrances of the Mansion House, the National Gallery and the Church of St. Martin-in-the-Fields. In the Metropolitan suburbs Chiswick House, and throughout England many country mansions, have the same dignified form of entrance. Among European capitals where such porticoes form the entrance to important buildings are Brussels, Vienna and Berlin; and in America a notable example is the Capitol of Washington.

(59) By means of the round arch the Romans solved many practical problems of spanning spaces. In the round-arched Aqueduct of the Campagna we see a remarkable example of beauty of form resulting accidentally from construction for utility. It is otherwise with the triumphal arch, for this is an erection in which a constructional feature, having been recognized as beautiful, was employed by the Romans as the basis of a design for the decoration of cities. The marble archway superseded the temporary structures set up for occasions of triumphal entry. At first there was a single round arch, as that of Titus in Rome, a monument of victory which shows among its sculptural adornments the seven-branched candlestick plundered from Jerusalem. In the reigns of later emperors the main archway was flanked on either side by a minor arch, the whole

thereby deriving the well-known charm of a triad with central feature of dominating size.

From these examples London derives the Marble Arch, and also the Wellington Arch through which many a stately procession passes on its way to Buckingham Palace. This is now surmounted by a quadriga, such as formerly crowned the Roman triumphal arches, a fact recorded on the reverse of coins, such as that which shows the triumph of Claudius over Britain.

(60) The architectural crescent became an important feature of town planning in England in the latter half of the eighteenth century. The finest example is the Royal Crescent of Bath built in oolitic stone by John Wood, Jr., in 1769, the houses fronted with columns of the Ionic order. This example was followed in the Crescent of Buxton erected between 1779 and 1788 of which the columns are of the Doric style.

In London the Park Crescent, north of Portland Place and facing Regent's Park across the open space of Park Square, is part of Nash's planning of the West End during the Regency, which dates from 1811. These designs appear to be derived from the colonnaded enclosures of classic times transmitted in the Piazza of St. Peter's in Rome. The change from a circular place to a crescent is characteristic of the English desire for an open outlook. The Royal Crescent of Bath has a remarkably fine prospect, being situated on the heights of that amphitheatre of hills which looks down upon the valley of the Avon. The beauty of an architectural crescent is not indicated either by the ground-plan or elevation of the architect's design, being dependent upon perspective. The convergence of the curving lines, those of the cornice descending, those of pavement ascending in the field of view, varies with every change of position and is always attractive.

(61) The period which we call ancient history was at its

prime of civilization in the second century A.D. Then the Antonines ruled the Roman Empire, the second Han dynasty that of China proper, and most of the intervening territory was ruled by the Parthians. These great states reached from the Atlantic to the Pacific, from the Solway Firth to the Gulf of Pe-chih-li. The continuous line of their northern frontier was the boundary between settled communities centred on cities and those of nomadic and pastoral peoples. This line, along which the average temperature throughout the year is almost exactly uniform, is no longer a political division, but considerable sections are still marked by walls erected for defence against the predatory tribes of the North. Of these historic relics the chief example is the Great Wall of China, fifteen hundred miles in length. The Roman Wall of northern England, sometimes called Hadrian's Wall, is relatively small in length, but nevertheless of prime importance as a feature of historic scenery, both on account of its picturesque setting and its accessibility to peoples who inherit their civilization from the Roman Empire. Originally extending from the Tyne to the Solway, the eastern and western ends were unfortunately demolished for the purpose of paving the military road constructed in the eighteenth century after the invasion of the Young Pretender. It happened, however, that in the central section the course of the Wall departed from the direct line in order to take advantage of the natural defence afforded by the Whin Sill crag which faces to the north. This is still crowned for miles by the square-block masonry of the Wall, with a camp at Housesteads, where the pavement of the gateway is scored by the ruts of chariot wheels of the same breadth apart as those on the pavements of Pompeii.

South of the Roman Wall the valleys of Northumberland are parcelled in fields after the English manner, but the wide view to the north is still that of Caledonia stern and wild. Vast stretches of rolling moorland clothed in rough grass

extend to the mountainous Cheviots on the distant horizon. Thus the great monument of ancient civilization is still in its original setting, and the scene so kindles the imagination that it comes within the scope of true beauty. Numerous as are the architectural relics of antiquity in Britain, it is seldom that the original surroundings remain unaltered. For this reason it is important that the adjacent part of the country comprised in the view from that portion of the Roman Wall which crowns the moorland "divide" between Tyne and Solway should be constituted a National Park.

(62) The Roman basilicas of oblong shape, with nave and side aisles, provided the pattern for the ground-plan of churches in western Europe; and their round arches for the colonnades of early churches such as those called "Norman." In Byzantium, the later headquarters of the Roman Empire, the supreme edifice of St. Sophia, erected in the sixth century during Justinian's reign, combined the round-arched colonnade of the basilicas with the dome of the Pantheon. The great circular dome of St. Sophia has semicircular apses of the same width on the east and west sides, and the whole of this long, domed structure is flanked north and south with aisles in which the round arch is an important feature. At the western end the narthex, or vestibule, spans the whole width of the cathedral. Such is the general plan of a building which for interior beauty has never been equalled by the innumerable churches of the Balkan Peninsula and elsewhere of which it has been the model and example.

Second only in importance to the dome, which recalls Nature's vast canopy of a clear and starry night, is the scheme of mosaic decoration covering the interior with the story of the Bible. The central dome, its surface not pierced but continuous, is crowned by the figure of the Creator. The scheme of the mosaics and their general effect can be realized by inspecting those of St. Sophia in Bayswater, London's cathedral of the Greek Church.

In Russia, where art was derived from Constantinople, the pictorial type of Byzantine mosaic was adopted for icons, the small metal plaques generally worn. In these, as in all Eastern Church mosaic, the portraits are full-face. This fashion in portraiture prevails in the English coinage of Plantagenet days, a practice said to be derived from the influence of Byzantine art. It is certainly noteworthy that in Renaissance times, when fashion in art once more came from Italy, our coinage reverted to portraiture in profile, as on the coins of Imperial Rome.

St. Mark's in Venice has been for centuries the shrine of Byzantine architecture most frequented by the pilgrims of beauty. The exterior, with incongruous additions of late Gothic style, is quaint rather than beautiful; but all such defects or limitations are forgotten when, passing through the narthex, we enter the ancient interior of dome, pillar, round arch and wonderful mosaic. When service is being conducted in some side chapel, the impression of beauty is enhanced by devout worship and sacred music.

(63) The Byzantine dome, although of prime importance to interiors, is not a conspicuous feature of the exterior views. Moslem architects, influenced no doubt by the example of St. Sophia, made the dome a main feature of their sacred architecture, but they devised more lofty types which provide a feature of prime importance in the scenery of Cairo and other cities. The lower part was built in horizontal courses, and the pointed upper part made thin, the section of the whole having the shape of a pointed arch. A later development is the bulb form, which by the thickened wall of the lower, overhanging portion counteracts the outward thrust of the upper part. This type, which attained perfection in the Taj Mahal at Agra, is exaggerated and no longer elegant in the form adopted in later Russian churches from the example of Tatar mosques. Finally, we come to the Renaissance domes of Western Europe, in

particular to the Duomo of Florence, St. Peter's of Rome and St. Paul's of London. A comparison of dates is interesting. The Florentine cathedral is fifteenth century, i.e. later than the mosques of Cairo, St. Peter's sixteenth century, and St. Paul's seventeenth century, the same century as the Taj Mahal, but later by some decades.

The Renaissance dome is mounted aloft on a drum, or upright cylinder of masonry, and thereby given greater prominence in the scenery of cities than had been formerly achieved. The structure as a whole is sometimes very elaborate, most notably in St. Paul's, the masterpiece of Christopher Wren. The points which require special attention in relation to the scenery of cities are, first, the pyramidal shape, which of all forms provides most satisfaction to the eye (as Nature shows us in the alpine peak and cumulus cloud); and, secondly, that the proportions are seen unaltered from every point of the compass. The case of the square church tower is different, for if its proportion is perfect when seen sideways it is not so when seen cornerwise.

Looking back on Rome when leaving by rail for Florence, the traveller is impressed by the way in which the dome of St. Peter's attains ever-increasing pre-eminence, seeming to preside over the city. So it is also with St. Paul's, whether we look back on London from Greenwich or from Hampstead Heath.

The cross upon the summit of a cathedral dome is the only feature of which the aspect varies with changing direction of view. The cross on St. Peter's is too small to matter, that on St. Paul's is somewhat too large, if considered from the decorative, not the emblematic standard.

(64) The lighthouse is the dominant form of architecture for the ocean traveller. Castles and cathedrals, domes and spires have passed beyond his sight, but upon coastal promontories the tall beacons, often with the graceful pine-tree form of the Eddystone, stand in stately solitude.

When built on rocky shoals they derive additional grandeur from the contrast of static strength with the force of bursting waves.

The ancient lighthouse at Alexandria, known as the Pharos, served as model for the columnar turrets from which, throughout the Moslem world, muezzins proclaim the hour of prayer. The name "minaret" recalls this origin, for the word is Arabic for lighthouse. One or more of these slender towers, often circular, stand beside the dome of the mosque, and the beauty of the mosque largely depends upon the harmony of these two features. When Constantinople passed from Christian to Moslem rule, the cathedral became a mosque, and slender minarets were erected beside the dome of St. Sophia, which the minarets over-topped. These features, which lead the eye upwards, are multiplied throughout Constantinople and add to the beauty of the city, but in regard to St. Sophia their combination with the squat Byzantine dome is somewhat crude.

The perfect harmony of dome and minaret was attained as late as the seventeenth century, and as far east as India, in the mausoleum of the Taj Mahal at Agra. As a mausoleum, not mainly a place of worship, it was possible to design the structure without the sacrifice of symmetry which is often required by the ritual of public worship. The symmetry of the Taj is that of a great central dome, bulging just sufficiently to show both an outward and an inward curve; a small dome at each of the four corners of the main building, and four minarets (higher than the small domes, but less lofty than the central dome) situated at the four corners of the stately platform on which the mausoleum stands. Each minaret has a dome-shaped cap conforming with the shape of the central and corner domes. Finally, the building is set in a garden designed conformably, and with green trees which offset the pure white marble of the mausoleum.



From DERWENT EDGE



GOYT
in the Goyt Valley



RIEVAULX ABBEY,
Yorkshire



(65) In the environs of Rome the Claudian Aqueduct of the Campagna produces a lasting impression from both magnificence and historic illustration. In this great colonnade of circular arches the traveller sees a prototype of arched river bridges and brick viaducts of railways. The Thames bridges of stone or brick are of many periods, so that the forms are not always circular, but sometimes of the pointed, Gothic, shape, sometimes an ellipse. Of those above the tideway, the brick bridge at Sonning-on-Thames below Reading is perfectly picturesque in structure and setting. At the raised centre is a large and semicircular arch for navigation, flanked by eight smaller semicircular arches with buttresses between for support against the current during flood. On the right, Berkshire, bank of the river the street of Sonning village with old-world houses winds down towards the bridge, and the grey tower of the church nearby stands against a background of stately trees. On the low, left bank of the river, peaceful pastures of green meadow spread far into Oxfordshire. The beauty of this bridge, as of all across quiet streams, is due in great measure to reflection in smooth water. The arch and its reflection make together a symmetrical form, yet without monotony of repetition owing to difference of texture between the object and its image.

As the river broadens, we come to stone bridges of later date with wide elliptic arches. The structures are of grand dimensions in the tidal reaches of the river between Westminster and the City of London. Of these Waterloo Bridge, erected by John Rennie in 1817, was a masterpiece of form. Nine elliptic arches spanned the space of three hundred yards leading towards the Georgian façade of Somerset House, with which Rennie's work was in harmony of style. The bridge was centrally situate on the bold curve of the river where its course sweeps round through ninety degrees. The Victoria Embankment, built subsequently on the

concave, Middlesex, side, emphasized the curve, and in full view, downstream, the dome of St. Paul's added another feature to a remarkable group of grand curves in city architecture. Waterloo Bridge derived additional importance in the scenery of London from the fact that it provided an advantageous outlook, Westminster, the City and their connection by way of the Strand, being ranged round the outer curve with the Houses of Parliament and St. Paul's equidistant, within a mile, on either hand.

The demolition of Waterloo Bridge was decreed and undertaken by the authorities, for reasons described as practical. It is to be hoped that with the spread of education there may be more general recognition of the fact that materialism has no monopoly of practicality. Whatever makes for the happiness of mankind is practical, and satisfaction of the sense of beauty is one of the chief contributions to human happiness. Neither can this source of happiness be truly regarded as a consequence of luxury and leisure, for even in animal and plant life the development of beauty is fundamental for evolution and continuance.

The most easterly of the arched bridges of the Thames is London Bridge, designed by Rennie and completed in 1831, somewhat similar in form of arch to Waterloo Bridge and with a slightly up-curved roadway. This, the latest of the many "London Bridges," is a supreme example of the picture of cross-ways which a bridge can present. Through the arches of the bridge the tidal current ebbs and flows, carrying the traffic of boats and barges; whilst along the roadway leading to the City the tide of human life flows in the morning and ebbs at the evening hour. From this historic pathway there is a view of unfailing interest, the Pool of London with its crowded shipping, and the Tower which guarded for centuries the harbour of our capital.

With the modern use of steel as a building material, new types of arched bridges have been evolved which impress

the eye by the great width of the spaces which they span. Such are the cantilever bridges of Queensferry on the Firth of Forth and Quebec on the St. Lawrence, and the huge single arch of steel at Sydney Harbour. These triumphs of construction have resulted accidentally in the decorative effect of a lattice silhouetted against the sky, of which Nature's prototype is that of the bare boughs of the forest in winter.

In addition to the permanent structures of great bridges, the steel lattices of the modern engineer have a specially decorative effect in the cranes used during building and for the loading and unloading of ships.

(66) The pointed arch and its associated forms, all leading the eye upwards, were developed independently of Roman and Byzantine influences in the early kingdom of France, the district known geologically as "the Paris basin." This architecture attained its most characteristic development in the thirteenth century, by which time it was also established in England, where it is described as "Early English." Such is the principal style in Westminster Abbey, our national Valhalla. The building stands on the south side of Parliament Square, an open space so large that the sky presents the appearance of a wide canopy on which the height of cumulus clouds is evidently far greater than that of any roof or tower. Yet on entering the north transept of the Abbey and being confronted by the perspective of upright column and pointed arch, the sense of height takes possession of the imagination as it never did outside. The religious influence of this impression is undeniable, for our knowledge that the Earth is "spinning on her soft axle" does not eradicate the instinctive feeling that Heaven is above.

The slender spires which surmount the towers of many English churches, notably the cathedrals of Salisbury and Norwich, are mostly of later date, but they carry on the motif of uplift which characterizes thirteenth-century interiors. The effect is mainly due to a subconscious habit of

the eye. When we look upwards at the summit of a square tower there is a subjective magnification of the upper part, for, knowing that the walls are parallel, the mind refuses to accept entirely the true perspective. A tall, slender spire capping the tower has a contrary effect, for, when looking up from near below, the approaching lines seem to lead the eye to almost unimaginable height. When viewed from afar the spire loses this effect.

In abbeys and cathedrals, both in England and abroad, the indoor scene has a magnitude unrivalled by the apartments of mansion or palace, for the House of Prayer is not divided by partition walls or ceilings, but is one great room. Moreover, the vaulted roof is as much superior in effect to a flat ceiling as the arched canopy of the starry sky is superior to the slightly curved covering of low rain cloud.

In our cathedrals, even since the Reformation, most of the fine arts are assembled in one scene, stone sculpture, wooden carving, monumental brasses, silver-work of chalice and patten, and the embroidery of altar decoration.

(67) The most interesting examples of ecclesiastical architecture in Norway are the ancient wooden churches, of which a perfect example is preserved at Oslo and another at Bergen. Both exterior and interior have a picturesqueness which appeals to the artistic sense, but the attraction of the buildings is enhanced when the visitor learns that the designs are based upon naval architecture. The small, round clerestory windows are port-holes, the finials are the dragon-beaks of Viking ships, the timbers of the interior are braced after the manner in which the hull of a ship is held together. The structures as a whole are not only decorative, but of unique interest as an illustration of the history and geography of the country in which they are situate. Although a part of the Continent, Norway is mainly accessible from the sea by ramifying fjords which run far inland. Availing themselves of these maritime advantages,

the Norwegians became Vikings, a predatory people who retained their pagan faith until the end of the tenth century. After conversion, they neither adopted the Byzantine dome, as did the Scandinavian dynasties of Russia, nor the Roman arch, as did their kindred in Normandy, but entrusted church building to the skilful constructors of Viking ships. Whilst in fabric and ornament the wooden churches have a nautical character, the pyramidal outline of the exterior suggests the purpose of harmonizing with the pointed tops of the native forest of fir trees. That these forms do in fact reinforce one another is evident at Oslo, where the ancient wooden church has a background of fir trees.

(68) Stockholm stands on islands and peninsulas of the waterway which connects the Baltic inlet of Saltsjö with the lake of Mälär, near whose northern shore the ancient capital Upsala stands. Of twentieth-century buildings the Stockholm Town Hall, designed by R. Östberg and completed in 1922, has the widest reputation for beauty. Its position is well suited pictorially for "the Venice of the North"; and indeed seems to have been chosen in reminiscence of the situation occupied by the Palazzo Ducale of Venice, which faces the Canale di San Marco, a waterway quarter of a mile across, a width similar to that of the channel which leads to Lake Mälär. But whereas the Venetian Palazzo is fronted by a mere causeway, the Stockholm Town Hall has a broad frontage laid out with formal gardens. In Venice the architectural group, of which the Palazzo is part, comprises the detached campanile. In Stockholm the corresponding tower, likewise of tapering form, is part of the Town Hall itself, standing at the south-east corner which faces two waterways. The Town Hall is constructed of red brick, following a fashion common in Baltic lands, of which the great churches of Danzig are a notable example.

The great tower and lesser towers of the Town Hall are capped either with open turrets of slender construction or

with small bulb domes, both of these features surmounted by the slenderest finials. Small bulb domes can be seen in western Europe as far south as Innsbruck, and those which are crowned with slender finials of great height extend as far north as Hammerfest.

The main front of the Town Hall, which is on the south, has two parts, the western and smaller, which belongs to the business portion of the building, has four stories of large windows. The effect is not unpleasing, but has no special beauty and does not convey the impression of great height. The longer, eastern, part of the main front, of which the eaves are but slightly above those of the western part, appears extremely lofty when viewed from the garden promenade. This effect is evidently connected with the shape, arrangement and size of the windows, those of the first floor very slender, of the two upper floors very small. It is this main, eastern part of the south front, including the great tower on the east and a lesser turret on the west, which is the gem of the exterior architecture. The ground floor, occupied by a colonnade of piers and arches, recalls that of the Venetian Palazzo. Small photographs of the Town Hall taken from across the water do not show the little windows, and give no impression of a building of great size. Photographs taken from the garden in front, even picture-postcards, show the windows and give an impression of much greater size. There is, however, another part of the architectural pattern which does not there appear—namely, that of the brickwork, strongly jointed and not mortared to the face, a pleasing surface which perhaps contributes to the effect of height.

Wandering round the building and through its courtyards from morn to eve on a fine summer day, all parts are found pleasing, and the colonnaded south front not merely pleasing, but a miracle of beauty, bringing true happiness to the traveller. It may well seem strange that the Stockholm

Town Hall should be of enthralling beauty when we recall that it was designed to carry on the tradition of buildings in a city of southern Europe, and that its materials and adornments are derived from types of architecture widely scattered in both place and time. The only answer possible is that these elements were not merely mixed together as with the pestle and mortar of an ordinary mind, but incorporated as in a crucible where the fire of genius unites all into a new compound which has qualities never yet revealed by the elements of which it is composed.

(69) In the gable, a triangular wall carrying the end of a high-pitched roof, the eye finds the satisfaction which the steep pyramid conveys both in Nature and architecture. In the mediæval cities of Germany and the Netherlands, the gabled ends of houses usually faced the street, and much attention was given to elaboration of their form. The square-stepped gable common in the Netherlands was adopted in Scotland; but the most elegant form is the scrolled gable with curved steps, usually described as the Dutch, or Flemish, gable. The distribution of this form in Europe seems to be connected with the area covered by the Hanseatic League. Thus on the Baltic coast it is well displayed along the river front of Danzig. In Norwich there was an important Flemish colony and the gable is a decorative feature in many villages of East Norfolk. At Topsham, in the estuary of the Exe a few miles below Exeter, the houses of the Flemish traders face the water front with the characteristic gable end.

In the Cape Province of South Africa the curved-gable, known locally as the Cape gable, became the dominant feature in rural architecture. Here brick and stone are replaced by a white plaster surface, and in the brilliant sunshine of the Cape climate the shadows thrown by trees upon the wall are not grey, but of beautiful, deep blue. The old farm homesteads with these attractive features might

have gone out of fashion had it not been for the sense of beauty which was so marked a quality in the personality of Cecil Rhodes. In his mansion of Groote Schuur these features were carefully reproduced.

During the period when Pretoria was capital of the Transvaal Republic, the Cape gable had gone out of fashion, but after formation of the South African Union, when a residence for the Governor-General was required, the curved-step gable was made a marked feature in the attractive Government House built on the outskirts of the city.

(70) When, as in our cities, people of the black or brown races are clothed as Europeans they are seen at great disadvantage, but in their own coloured costumes under the strong light of the tropics we no longer dislike their complexion, "the shadowed livery of the burning sun."

In the markets of Dakar and Bathurst on the west coast of Africa, the black people are clothed in bright colours matched by the colours of the tropical fruits displayed for sale, the chromatic scene surpassing that of any such gathering in northern lands.

In Ceylon the market of Colombo is a scene yet more beautiful, for here the women of brown complexion, well draped in garments of bright colour, have fine features, and eyes of a soft expression unsurpassed by the people of any country in the world.

(71) Within living memory lintel architecture was associated chiefly with Greek buildings of the Parthenon type, unsurpassed in reposeful beauty. Their adaptability to modern needs was, however, restricted, especially in span of roof, by the limited stress which can be borne by beams of wood or stone. With the development of the steel industry, however, the span of lintel roofs was increased, as well as the height of buildings.

When, after crossing the Atlantic, we enter the wide harbour of New York, the chief gateway of the New

World, we see the loftiest examples of steel construction with a broad, flat foreground entirely suitable, and the general effect is truly splendid. The impression is like that felt by Gulliver when he first saw a Brobdingnagian city.

The United States leads fashion in the Americas, and New York is the radiant point of the giant buildings of steel-frame construction which are seen from Montreal to Buenos Ayres. Moreover, in the modern world, with its increased facilities for communication and transport, architectural fashions are no longer restricted by continental frontiers, and steel-frame buildings now rise above the older surroundings in European, Asiatic and Australasian cities. Buildings which overtop their neighbours are apt to appear incongruous, and in old cities their erection calls for careful planning, as is obvious in London. In re-planning cities there is one golden rule for the welfare of the people—namely, that the density of population should not be increased. Thus with higher buildings the open spaces should be enlarged so that the re-constructed town may become a Garden City.

The long girders of steel construction have given a spaciousness to flat-roofed interiors, as is well seen in popular restaurants and department stores. Their size is such that they cannot be sufficiently lighted from windows, and they are therefore illuminated in daytime as well as night by electric light. The multitudinous reflections from silvered and ceramic surfaces have a joyful effect. This combination of spaciousness and brightness greatly contributes to the cheerful aspect of city interiors during the dark northern winter.

Electric lighting was introduced by experts in pure and applied science, which may account for the insufficient attention which this illumination has received in the literature of art and beauty, to which neither physicists nor engineers are accustomed to contribute.

In the Near and Middle East it happens that steel-frame

residences, with the flat roofs which are the most convenient construction, harmonize with the older flat-roofed houses which are characteristic of the Islamic world. This is especially fortunate, because the pitched roofs of European style had begun to introduce incongruity.

(72) In the architectural scene of the Far East, the outstanding form is the concave curve of the roof with cusped corners. This form originated in China and passed on to Japan by way of Korea. The adoption of modern facilities for travel in Japan during the latter half of the nineteenth century made that country, not China, the resort of pilgrims of scenery from the western world; as in earlier days Italy, not Greece, was the resort of travellers interested in classic art. Moreover, the arts of Japan, although derivative, are not imitative, for the people have an original artistic sense.

The concave curves of the massive, wooden temple roofs outlined against the sky are an unfailing delight. The cusped corners are echoed in the stone votive lanterns of the courts. The concave curve of the roof is repeated in the stone wall which supports the belfry where stands the great bell of which the deep, vibrating note, sounding at the close of day, evokes the mood of worship in men of all religious creeds.

The scenery of sacred architecture in Buddhist Japan differs from that of the Christian and Moslem worlds, not only in the forms of construction, but in the relation of temples, shrines and monasteries to their environment of natural features. For the origin of this planned relationship we must look back to Chinese tradition. The religious outlook on Nature in Chinese civilization is indicated by their landscape paintings, which date from many centuries before landscape pure and simple entered into the art of the western world. In the landscape art of China the introduction of human and animal forms was not in any way essential. A landscape comprising only land, water and trees was not regarded as inanimate, for, according to Chinese religion

and philosophy, all Nature was instinct with the divine spirit. Thus there was worship through Nature, although not the idolatrous Nature worship prevalent in Europe during pagan times. Our heathen forefathers were converted from their worship of the deities of Nature by Christian missionaries, who regarded Nature as the kingdom of the Devil. In the ecclesiastical literature of recent days there have been a few attempts to put forward the doctrine of Divine Immanence in Nature, an outlook on the world which is to some extent instinctive in many students of natural science.

In the Buddhist communities of Japan there has been no break in the adoration of Nature, with the result that the natural setting of temples, monasteries and mausoleums is entirely different from the customary surroundings of sacred buildings in the Christian world. Shrines have been erected where the pilgrim can look out upon a distant prospect of beauty. The mausoleums of Nikko are surrounded by stately cryptomerias which cast soft and restful shade upon the tombs. Monastic gardens are laid out as symbolic landscapes in which every feature has religious significance. Thus, when the enclosing shutters of the shrine are drawn back, the pilgrim who visits the monastery looks upon a sacred scene, whether his gaze be on the sculpture and paintings of the interior or on the adapted forms of Nature in the garden.

Not least significant of the recognition of natural beauty as a source of spiritual inspiration is the dating of religious festivals by the blossoming of flowers, not by the anniversaries of saints. The Japanese cherry tree is planted in temple gardens in order that when the people flock to enjoy the sight of its pink blossom they shall make a prayerful holiday.

Even the domestic gardens of Japan are notable for idealism. A pine tree with branches trained to spread above the gateway is symbolic of the sheltering arm, and the garden is laid out as a landscape with dwarf trees and other features on a scale suitable for the area enclosed.

CHAPTER FIVE

THE SCENERY OF CIVILIZATION (*continued*)

(73) The forms of the land, and of vegetation occupying definite positions in the landscape, are more important than those of animals and men in natural scenery. The latter are, however, superior in symmetry, and by the art of sculpture this type of beauty has been made a local feature in the scenery of civilization, especially in cities.

The west end of Exeter Cathedral is modelled in the upright lines characteristic of pointed Gothic architecture, and the spaces between projecting masonry are occupied with upright figures in the contemporary style of English sculptors. Although worn and weathered, these architectural figures of saints and knights are not only suitable for decoration but impressive in themselves, making us long for personal records of the English sculptors of these early days when the art had already attained its development as an accessory of ecclesiastical architecture.

In the interior of churches of Early English and Decorated style, the recumbent statues, such as those of the crusaders of the Temple Church in London—now, alas! destroyed—are also concordant with the architecture, for horizontality is not inharmonious with verticality.

Entering Westminster Abbey by the north transept, sculptured monuments of Renaissance and later times are seen on either hand. Their attitudes, and classical or semi-classical style, are incongruous with a background of soaring lines and pointed arches. In St. Paul's Cathedral sculptures of the same class are in harmony with the broad lines and spreading curves of the Renaissance architecture.

(74) The visitor who wanders round the West End of London may note that the statues, whether symbolic or of

famous men, gain importance from their focal position at cross-ways, at the centre of a place, or as a terminal feature. In Washington they gain yet more from situation at the centre of radiating avenues.

The figure itself is viewed critically for estimation of its artistic merits or demerits, but the pedestal on which it stands is accepted as a necessary adjunct, and is in consequence generally disregarded. Yet a position just above the horizontal line of sight adds greatly to the impressiveness of the figure. This is illustrated by a recent departure from the general practice, that of the statue of Lord Kitchener on the Horse Guards Parade. The build of the man was particularly well adapted for treatment as an upright figure, but the pedestal is so small that the eye has to range downwards and upwards, and the figure is thereby made less impressive. Whatever be the subconscious cause, this conclusion is confirmed by the corresponding effect of another kind of pedestal—namely, a raised causeway surmounted by a row of houses, which can be seen in many a village and country town in southern England. In every case the houses gain in appearance from the fact that the base of their frontage is not below the level of the eye.

In Florence the Piazza della Signoria is embellished by Benvenuto Cellini's statue of Perseus in an open vaulted hall which faces the great square. This is not the only outdoor statue in Florence which illustrates the excellence of Italian Renaissance sculpture. It is, however, not from these celebrated works only that the English visitor can derive a lesson for the improvement of civic decoration. In the open hall of a market there is a basin for the washing of vegetables. Presiding over this pool is the splendid statue of a wild boar, and carved round the edge of the basin are frogs, snakes and such-like creatures. The effect is that of a natural pond in the forest, and the subjects of sculpture are so chosen that the necessary refuse does not seem in any way

disagreeable. It is impossible to ignore the important difference between this beautiful piece of sculpture and the fountains, usually with an unctuous inscription, which we are accustomed to see in our towns.

In Berlin the principal avenues of the city are architecturally impressive, but the sculptures placed for their adornment are too ponderous to be decorative. In Hamburg there is an eminence crowned with a colossal statue of Bismarck. This statue is impressive, for Bismarck was himself colossal in appearance as well as personality, and thus provided a subject for which the bias of German sculpture was no longer a defect, but a desirable quality.

In the Scandinavian countries further north, the genius for sculpture becomes apparent. In Copenhagen the fountain of the goddess Gefion ploughing the sea with her magic oxen is splendid in execution and poetic in motif. The legend is that the ridge thrown up by the plough-share is Zealand, the island metropolis of Denmark, and the furrow is Lake Mälär, on whose shore the capital of Sweden has always been situated. Nowhere is the impression of forceful movement better represented in the stationary solidity of stone than in the Gefion sculpture. The effect of movement is, moreover, enhanced by the torrential spray from the waters of the fountain which dash against the team of oxen driven by the lash of the goddess in her chariot. This great sculpture is one of the adornments of a city which is in no way wanting in fine features of architecture; but when, voyaging much further north, we come to Iceland, where kindred of the Danes and Norwegians live near the borders of the Arctic, we find in Reykjavik a capital city with streets of wooden houses little better than huts and shacks. Yet at prominent positions in the city there are splendid sculptures of Viking heroes standing in armoured panoply beside the beak and prow of a warship, of which the form conveys the impression of forging ahead in maritime adventure.

Thus in Reykjavik sculpture is the dominant art in the scenery of a capital city.

(75) Sculpture in stone is not an important element in the art of Japan. Figures carved in wood constitute a considerable element in the decoration of temples, monasteries and mausoleums, but their character, distinctive of native art, is less important than that of the bronze Buddhas which bear the stamp of Hindu tradition. The outstanding example is the colossal Daibutsu of Kamakura, sitting cross-legged in the Indian way, with bowed head and joined hands. The features are Mongolian, to which the visitor in Japan so soon becomes accustomed that the type no longer detracts from the impression of the face. In this great statue, situated out of doors, the crowning ideal of a religious people has been so wonderfully embodied by the craftsman of another artistic race that here, in Kamakura, is as perfect a picture as the world can anywhere provide of "the peace of God which passeth all understanding."

(76) Heraldry takes its place in the architectural scene with the flags which fly upon buildings, stained glass windows of church and college, and also in the sculptured supporters of armorial bearings which provided opportunities for imaginative variation of animal forms. Although of less interest than the spiritual symbolism of Assyrian sculptures (combining in one form the wisdom of man, the strength of the ox and the swiftness of the eagle), yet heraldic supporters designed to fit their architectural background have special decorative value. An excellent example can be seen at St. John's College, Cambridge, where the "Beaufort Antelopes," with horns addorsed, are attitudinized to carry on the curves of the entrance gate.

In the national and royal flags hoisted on days of festival, and flying gaily in the breeze, heraldic devices of mediæval times have their chief influence upon the mentality of the modern man. By a curious accident these emblems, when

flown at half-mast on funeral occasions, have a mournful effect, for instead of fluttering gaily as when held tautly at mast-head, they sway slowly and sadly on the slack centre of the cord.

Of the many heraldic decorations of architectural interiors, the shields in colour upon stained glass windows are by far the best, for colours displayed by transmitted light have a glowing splendour which exceeds any effect of a painted, solid surface. Moreover, the leaden strips, which must be used for partitioning stained glass, are suitable divisions for the heraldic pattern, which therefore has an advantage over the figure subjects of stained glass windows which are of necessity too much divided by these opaque strips.

The long windows which light the high table in dining halls of the old colleges in Oxford and Cambridge are well-known examples of stained glass with heraldic devices. The full appreciation of their decorative value is the monopoly of those who have not forgotten the language of heraldry.

(77) In the Middle Ages, when the Church was the greatest capitalist, there was hardly any limit to expenditure on the pictorial advertisement of religion by mosaic, fresco, panelled picture or stained glass. In modern times the expenditure on pictures designed to influence the public mind has passed from the ecclesiastic to the merchant. In both city and village, and even where road and rail traverse lonely places, the world is plastered with pictorial advertisements. But whereas the religious pictures of mediæval and Renaissance times are a delight to the eye, the pictures which cost commercial companies enormous sums are mostly an eyesore to people of culture. The explanation of this difference is not far to seek, for, whereas the ecclesiastical motif was mental profit, the commercial motif is financial profit, and pictorial advertisements are now designed for the actual, or supposed, taste of the majority of the population. There



THE DOME,
FLORENCE





STOCKHOLM TOWN HALL



LA CORBIÈRE, JERSEY

are few problems in the scenery of civilization which are more important than the regeneration of pictorial advertisement. Little can be achieved by merely girding at the prevalent bad taste, for the motif of financial profit is one of the mainsprings of human action, influencing all who have to earn a living, and also the majority of those who possess independent means.

What then is the remedy for vulgarity in advertisement? The answer is indicated by the unpopularity of such pictures among people of culture. The remedy can therefore be simply stated, although it will require a long time for complete fulfilment. It is, in fact, increased attention to artistic culture in schools, particularly the primary and secondary. When the managers of commercial companies find that the general public requires more tasteful advertisements, these will be provided, however much they cost. Not only should there be good pictures, but also tasteful lettering, for which specialists must be retained.

It happens that in this matter there is a silver lining to the cloud of war. For military reasons many an unsightly hoarding has been taken down, and advertisement by flickering electric light has been done away with. Matters of habit have much to do with the commercial requirements of advertisement. Thus for the authorities concerned with reconstructive planning after the war, the task of preventing the renewal of vulgarities will be easier than that which would have confronted any Government which had endeavoured to prohibit their continuance.

(78) In urban scenery, regular forms and massive substance are spread abroad, and if these occupy the whole field of view beneath the sky the scene suffers both from rigidity and camouflage. Thus Nature is needed as a decoration in the scenery of cities. In the city of Venice the massed forms of architecture are displayed with marvellous advantage by the bright surround of smooth water and Italian

sky. Those who desire to receive the right impression of Venice should not approach by land, but by the true historic route, the sea. Then as the ship casts anchor in the Canale di San Marco we view on the south the cathedral of San Giorgio, dome and campanile silhouetted on the sky, and stately portico lit up by reflection from the bright waters beneath. Then, taking our gondola, which glides slowly and quietly, as is fitting for the mood of receptive observation, we pass, at the entrance of the Canale Grande, the Renaissance dome of Sante Maria della Salute, a building known to people of all countries, being the subject of innumerable pictures. Although a good piece of architecture, it would not be thus celebrated except for the perfection of its display between the smooth waters of the Adriatic inlet and the sky above.

When the London traveller returns to the "City," where the upstanding forms of architecture rise from the pavement of street and footway, he may realize more than ever the want of off-setting contrast in colour and texture; and so, although not longing for the unattainable effects of a city set in the waters, he seeks the West End, where the preservation of vegetation has provided a natural foreground to the architectural scene. Residents, particularly those who from greater age or lesser means do not go out of London at the week-end, may value especially the furthest recesses of Hyde Park and Regent's Park for the sake of a return, as nearly as possible, to the scene of Nature pure and simple. The harmony of Nature and architecture in urban scenery is, however, better exemplified in the smaller St. James's Park with green sward and lofty trees and a little lake where wild fowl swim, backed by a royal palace on the west and by the modern classic architecture of the Foreign Office on the east.

The typical London square is an example of that love of Nature which is so remarkable in a people who have become

mostly town-dwellers. The central area is a timbered garden which provides the residents of the surrounding houses with an outlook on Nature. Its semi-private character may not satisfy modern sociologists, but from the purely scenic point of view this combination of Nature and architecture is much to be commended and should be carefully preserved.

Of all the forms which the plan of a city contributes to the outdoor scenery of the world, none is more important than the vista. Nature very rarely presents an avenue stimulating the imagination by sense of distance, although such can, indeed, be seen in the Norwegian fjord. In cultivated Nature, however, "the regularizing hand of man" has introduced the avenue which leads through the grassland of the park to the stately mansion of nobility. When such a colonnade of trees is made the inner avenue of that architectural vista which we call a street, the combination is remarkably harmonious, for there is an advantageous softening of form and brightening of colour, yet with a concurrence of general outline. In winter, except in tropical cities, the colour effect departs, but the tracery of bare boughs both softens and magnifies the architectural background, the lattice work exercising an influence on the eye which has much in common with that of an absorbent atmosphere. In Paris the Avenue des Champs-Élysées is a stately example of the tree-lined vista, and the boulevards of Marseilles have the added charm which Mediterranean sunshine imparts to the scenery of cities. But nowhere is the combination of architecture and tree-form in vistas more remarkably designed than in Washington, a city planned as a whole before its building began. Main streets radiate from gardened circles, not squares, and some of these boulevards have a double avenue, that is to say four rows of trees.

Within a city, flowers can, and should, be used to brighten the architectural background. In late Victorian times the residents of the West End of London never omitted to

decorate their houses by window-boxes of flowers, and let us hope that this addition to the urban scene may once more be regarded as a civic duty. Let us not forget, moreover, the special value of bright blossoms, as that of the red geranium, in the recesses of courts of mediæval cloisters, where the cheerful beauty of the flower is enhanced by the darkness of the background.

In Washington and the Summit Avenue of St. Paul in Minnesota the residences of the rich are ranged on a continuous band of green turf with no dividing fences, thereby gaining both grandeur of space and freedom from trivial detail, and thus on both counts an appearance of repose. The aspect of these residences is a contribution to communal scenery. If we turn our attention back to the scattered cottages of England's villages we find the front garden so small that a screen of shrubs or trees would not be practicable, and so its flowers brighten the general scene. The gardens of English villadom, on the contrary, are screened by shrubs from the outside world. The chief practical advantage is, of course, privacy; but from the scenic standpoint the occupier often derives advantages from the exclusion of incongruous sights.

The residential outskirts of Toronto show the merits of a planning scheme which combines the advantages of communal and private gardens. On each side of a long, straight road are detached houses of moderate size, not separated in front by fence or partition, but standing on a continuous green sward, and so presenting the appearance of a stately avenue. But the back gardens are fully fenced from each other. Thus every house has both a communal scene and also a little world of its own.

Among the many enhancements of architecture by Nature must be reckoned the clothing of naked ruins with a green garment. The ruins of our ancient abbeys, desecrated in the epoch which was not architecturally a "Reformation,"

became clothed with ivy. Fountains Abbey in Yorkshire was a notable example of the beauty of an ivied ruin. But now the archæologist has mastered the situation, and in England all such relics of antiquity are exposed in naked disfigurement.

(79) Travelling south by railway from the wild Veldt, the sight of the simple native kraals of Natal at once impresses on the eye the more regular symmetry which the hand of Man has added to Nature. Wherever an architectural structure stands in isolation amidst natural features, emphasis of form makes it the focus of the view. In Alpine scenery a church steeple viewed against the background of a mountain in shadow, as the church of Grindelwald backed by the Wetterhorn, acts as a *repoussoir*. The apparent distance, and consequently the size, of the mountain is increased, with a softening of tone and enhancement of atmospheric effect.

Of accidental, but striking, harmonies of form a well-known example is provided by the pointed roofs of the Castle of Chillon backed by the distant peaks of the Dents du Midi. As in all cases of harmony of form, the enhancement is mutual. From the city heights of Naples, the curved bay and the curved outline of Vesuvius are emphasized by the cathedral dome in the foreground.

Among the most notable enhancements of Nature by architecture is that of a steep rock crowned by the upright strength of a fortress wall, as in Edinburgh, a national capital which grew around the defensible crag where the historic castle stands. This is an example which cannot escape observation, but full recognition of its beauty on the part of both resident and tourist was promoted by the insight and initiative of Patrick Geddes, an æsthetic student of scenery, who erected the Outlook Tower with a *camera obscura* in which Edinburgh Castle can be viewed as an isolated picture. This has its finest aspect when the massive

outline is seen against the red background of a winter sunset.

The enhancement of a natural feature by architecture is also illustrated by the fortress crowning a steep promontory which provides a sheltered anchorage. Many such are seen on the rocky shores of the Mediterranean, an attractive example being that of Corfu.

Last, but not least, is the architectural development of a small island such as the Isola dei Pescatori of Lago Maggiore, which, with its village, makes a perfect decoration for the broad waters of the lake. Other examples are provided by the islets of the inner Gulf of Cattaro with church and monastery rising above the calm waters of this Adriatic fjord.

(80) The ridge-way of Haslemere Heights culminates on the east at Blackdown Hill, sloping steeply to the broad plain of the Sussex Weald, beyond which can be seen the chalk downs and Ashdown Forest. There are no prosaic midway features, and the eye dwells upon the distance which "lends enchantment to the view" etherealizing the landscape and thus imparting an idea of Heaven. This view exercised such influence upon the Nature-loving poet Tennyson that he built himself a house from which to look out upon it; although in those days, before the advent of the motor, the situation was by no means convenient of access. The main front of Aldworth House faces the view, and beyond the lawn a terrace runs along the very edge of the steep declivity. The view as it may happen to appear to one who comes as a visitor to this shrine of scenery, is merely a single aspect of a varying scene, for the features of the broad prospect are but the outline of a picture ever changing in tone and colour through all the round of hours and seasons in England's variable climate. To live where the outlook is on such a scene endows the ordinary man with poetic feeling, however inarticulate he may be.

In recent times many houses have been built in England upon lofty sites for sake of the distant view, but it too often happens that these villas, cutting the sky-line as seen from the plain below, are a blot upon the landscape, for the case is far other than that of a mediæval castle crowning a rocky crag.

In order to ascertain how the Poet Laureate's house stood with reference to the outlook of his neighbours, the visitor should drive along the roads which skirt the Blackdown promontory on the plain below. From the eastward side Aldworth House can be seen, but merely as a relatively small and entirely unobtrusive feature. Moreover, it does not cut the sky-line, for it nestles just below the summit of the plateau and is backed by trees. Thus the situation of the house which the poet built is in every way right and proper.

In planning the English country-side of the future this example should be followed, and the hard and fast rule laid down that no house on a hill may be erected where it will cut the sky-line, and thus mar the view of the many for the enjoyment of the few.

(81) The old farm-houses of the English country-side, built of local material, are of many patterns, for the geological structure of England is of variety unusual for an area of such moderate size. In each district the farm-houses and the buildings of the farm-yard, making up together the farmstead, were originally harmonious, whether of timber framework or of brown-red brick and tile; but in most districts the repairs of later date have been in materials brought from a distance and generally inharmonious, of which the worst is the corrugated iron roof. But in one of England's agricultural regions, the Cotswold country of oolitic limestone, the fabric of the farmstead buildings, as well as church and manor house, and accessories such as the dove-cote, remain unaltered gems of rural architecture. This is largely on account of the enduring character of the stone-slab roofs.

The texture of the oolite is firm, but the surface has sufficient roughness to break up the light pleasantly, and the pale buff tint is not only an agreeable contrast with green leaves, which is not exceptional in building materials, but also makes an unusually good background for the bright flowers of the garden. Thus all the Cotswold buildings are in harmony with each other and with surrounding Nature. The natural landscape, although pleasant, has not special beauty, and so the extraordinary attraction of the locality can be attributed only to the contribution given by the hand of man hundreds of years since, and to the local reverence for the past which has guarded the inheritance of beauty for the present and future generations.

(82) In the wide Grindewald and neighbouring parts of the Bernese Oberland, the old wooden chalets provide one of the most harmonious examples of an architectural style evolved by rustic craftsmen employing local material. Except the big, rough boulders from the stream which weight down the slats of the roof, wood cut from the communal forest is the sole material of construction; as it is also of both the domestic and agricultural implements. Wooden troughs beneath the eaves carry off the water of the melting snow; the timbers are held together by wooden bolts; the doors are fastened by wooden latches; the rake, the bucket and the sled, stored under the pent-house, are all of wood, and hand-made. The inscriptions which run above the front balcony are a notable feature, and being in the Gothic type conform to the peaked character of the building. Thus in both the architecture and the subordinate arts, there is perfect concordance of line and texture. There are, moreover, notable harmonies of tone and colour with surrounding nature. The immense breadth of eave, designed as protection from the heavy snowfall, and the balcony beneath, give depth of shadow in the strong sunshine of these high altitudes; and the rich, red-brown of the

weathered timbers is in bold but harmonious contrast both with the summer green of the Alpine pastures and with the white mantle of the winter snow.

(83) The pattern of the world's vegetation has changed progressively since the dawn of civilization, and to-day no small part of the surface of the land is partitioned quadrilaterally in fields. These make a colour pattern of which the decorative importance is largely due to a variation of colour in correspondence with the seasons. Whereas the round of day and night is the only variety which the aspect of Nature brings into the life of factory and office, the round of the year brings into the scenery of agriculture the seasonal variety of ploughing and sowing; growth and harvesting. Thus, even although the peasant be poor, he has such change of scene and occupation as the indoor worker can only obtain if he has wealth to spare.

The æsthetic appeal of agriculture is witnessed alike by poetry, art, and the history of the arcadian cult. Thus we have the *Georgics* of Virgil, the landscapes of Gainsborough, and the architects' contribution, a "cottage of gentility" with thatched roof and quaint windows, introduced in the eighteenth century in order to help cultured people to regain contact with Nature after the tumult of the town.

The pattern of the field in different parts of the world varies both according to climate and local civilization. The traveller on his way by train from Ismailia to Cairo passes suddenly from the open space of the tawny desert to the intense green of the Nile delta, partitioned by channels of irrigation. In the Far East, level swamps reaching to the foot of steep hills are neatly laid out in green rice-fields. In Mediterranean lands of Europe, the vineyard takes precedence in the agricultural scene, providing a picture of special attraction when the grapes are harvested.

Less spectacular, but more satisfying in periodic harmony with the seasons, are the corn lands of England, of which a

perfect example is provided in the rich soil of Suffolk. We have become so accustomed to think of the year as necessarily beginning on the first of January, that we are apt to forget the historic changes in the calendar and even the fact that there are different calendars for different occupations; the financial year beginning with the spring, the academic year with the autumn. This is also the beginning of the agricultural year, when the pattern of the Suffolk farm is the rich brown of newly ploughed fields interspersed with green meadows. Throughout the winter the shrubs and grasses of the dividing hedgerows and the hedgerow timber maintain those beauties of natural vegetation which are lost to the agricultural scene where artificial fencing is employed. In spring-time young, green corn changes the colour pattern of the farm. In late summer this attains its greatest beauty when the tall, yellow stalks of the waving corn are capped with the ears of golden grain.

(84) The taming of wild animals, which dates from prehistoric times, has contributed to the beauty of our environment both by the addition of decorative form and movement and by the spectacle of partnership between man and beast. In the Oriental world an elephant, richly caparisoned, is the outstanding feature of state processions; tall camels treading softly in single file are a picturesque feature of the desert caravan, their colour harmonious with the natural background. In both the Oriental and Occidental world, horned oxen yoked to the laden cart are a perfect picture of patient strength. The horse especially is an element of beauty in the scenery of civilization. If we compare the Arab, the cart-horse, or the hunter with the wild horse (as far as the latter is known), we can realize that in the art of stock-breeding man has contributed to the beauty of the animal world. This, in relation to the æsthetics of scenery, is some atonement for the extirpation of wild species.

The ploughman and his team make a perfect picture when seen on the sky-line of rising ground. The flock of sheep tended by the shepherd and his dog symbolize so perfectly the care of the weak that "The Shepherd" has become the expression for a Divine Guardian.

Cattle grazing in the meadow are a picture of quiet contentment, and their colours, especially that of the red Devon, are decorative in contrast with the green background. In Alpine valleys, typical examples of mountain pasture, the cattle are a particularly attractive sight. When released from their winter byres they graze in the lower fields. The tall but scanty grasses are soon consumed, and then, following the melting snows, they ascend to the short turf of the upper pastures. Here the first tinkle of a cow-bell heralds the return of day, and soon the sound multiplies, making a musical accompaniment for the natural scene.

More remote than the mountain pastures where cattle graze, are the rocks clothed with short turf which rise like islands amidst the glaciers. Here the goat-herd brings his flock to crop the close herbage.

(85) Modern industry provides an impressive spectacle of power, but the manufacturing town is sadly disfigured by smoke and unsightly buildings smeared with grime. It is otherwise in the temporary engineering camp where the operation of machinery does not entail these disfigurements. The outstanding example of such a camp within the experience of the present generation was that of the Panama Canal. There has never been a more wonderful contrast of the works of modern civilization and the background of wild and primitive Nature. The Culebra Cut, crowded with steam-shovels, drills and clanking rail-trucks clearing away the spoil, was backed by the hills of the Isthmian Divide clothed to their summit with the dense vegetation of the tropical forest.

The other great feature of this vast undertaking was the

Gatun Dam. Here modern man achieved the result which Nature effected during the glacial epoch when the terminal moraine blocked a valley and ponded-up a lake. Such is the modern Lake Gatun which now provides a broad water-way leading to the Culebra Cut. This is one of the greatest contributions to natural beauty which has ever been made by the hand of man. The size of the lake is twice that of Lago Maggiore. Lion Hill and other eminences which stood above the former swamps are now emerald islands amidst wide waters. Waterfowl at once discovered the new feeding ground. White cranes may be seen walking delicately across the broad leaves of water plants which fringe the shore, and solemn pelicans flap heavily along above the waters of the lake.

(86) Chemical industry in modern manufacture does more to disfigure than beautify the landscape, but the blast-furnace contributes to the scenery of night. When it is re-fuelled, and flames leap up into the sky, the great tower seems like a volcano.

Wherever flame is seen, outdoors or within, it has decorative beauty, although its associations are of two divergent kinds, ranging from comfort to destruction, from worship to persecution.

The flames of the camp fire, driven right and left by the wavering wind, are an unceasing attraction to the sight, but an even greater delight is the fire on the domestic hearth at eventide, especially in the old-fashioned home where the room is not too brightly lit. The flames leap up with pointed and forked tongues, and to their flickering light there is the musical accompaniment of a soft, fluttering sound. Warmth, light and sound combine in restful harmony at the close of day and so it has come about that in the ornamental fireplace and mantelpiece, with pictures or other treasures hung above, the beauties of the arts and crafts are collected where the glow and flame of the fire make a centre of attraction for people young or old.

(87) The forms of transport, whether of aquatic creatures, ship or aircraft, are modelled upon stream-lines. The general character of these lines can be well seen in the boundary of the eddy on the lee of an obstruction in a river. This tapers to a point far beyond the broad, rounded, up-stream end. In many rivers islands of this form can be seen, made up of detritus which has accumulated in the eddy space behind some permanent obstruction.

Looking down through the clear water of a chalk stream upon the trout holding their position steadily against the current, it can be seen that the broad head and tapering tail make a form which fills up the eddy space so that the current can flow past without exercising the pressure which eddies cause. The upper surface of a "flat-fish" lying head on to the current has a curve similar to that which is complete in the ordinary fish and such creatures as the shark. The same class of curve as that of the flat-fish can be seen in the surface of a snow-drift when the space on the lee of an obstruction has been completely filled. This final stage having been reached, the wind carries the drifting snow over the "bluff bow and tapering stern" without encountering the resistance which was maintained as long as there was a sharp cusp on the lee side of the drift.

Such are the lines adopted in the submerged parts of boats and ships, originally no doubt the result of trial and error in seeking for the form of least resistance. The curves of a well-built boat or ship have always been regarded by sailors as lines of beauty, for which their enthusiasm has provided landsmen with the amusement of ignorance.

The fast Atlantic liners of to-day have a box-like superstructure, but the elegant under-water lines can be seen from a neighbouring vessel when the bow of the liner rises to meet the waves of a head-on sea which bursts in spray over deck and bridge.

In fine weather, when standing on deck at the bow, where

there is no longer a bowsprit obstructing the view, the steady forging ahead of the vessel, between the scroll of foaming waves, produces an impression of everlasting progress which delights the pilgrim of scenery. When at night-time in warm waters the bow-waves gleam with phosphorescence a sense of mystery is added to the attraction of the scene.

From time to time upon the voyage, dolphins come racing in towards the ship and enjoy the sport of swimming in front of the bow-wave. Keeping station thus they display to perfection the stream-line form characteristic of water transport.

The stream-lines of a shark's fin are not well seen when looking down from the ship's side, but are displayed when a stuffed specimen is hung high up in the gallery of a museum. A stream-line of similar character is now repeated in the wing of aeroplanes.

(88) The sails of ships and boats are decorative in silhouette against the broad, coloured background of water and sky. In their response to the force and direction of the wind they illustrate an agent, invisible but not insensible, which man harnessed to his use before the forces of steam and electricity were discovered and applied. Such is the variety of sails that their nomenclature is beyond the scope of the landsman's memory, but they can be classed in the two categories of "fore and aft" and "square" sails—that is to say, those which can be set squarely across the ship.

The sailing ship moving steadily before the wind is a majestic sight, no longer often seen upon the open ocean, but still plying in an archipelago such as that of the Canaries and the Caribbean Sea. The sailing boat, however, still remains with us in lake, sea and tidal river, and these lesser vessels have a special charm in their response to Nature, careening to the wind and leaping to the wave. Barges tacking as they come up an estuary on the flowing tide display in endless

variety the bulging forms of their triangular and quadrangular sails. Even more decorative are those of Lake Lemman, with a pair of triangular lateen sails addorsed as the wings of a butterfly.

Whereas in the early vessels of northern seas the sail was quadrangular, the shape of those of the Mediterranean was triangular, as also in the neighbouring waters of the Nile with its *dahabeah* and the Red Sea with the Arab *dhow*.

On reaching the China Sea it is the decorative, strutted sails of the junk which are the first evidence that we have entered another world in all that relates to the scenery of civilization.

Sailing ships and boats have additional interest and charm from their illustration of the industrial life of so many human communities, some indeed still primitive. At the other end of the social scale we find that the wealthiest class of the wealthy nations have added to the decoration of the waters by sailing yachts which excel all other craft in their "white wings that never grow weary."

CHAPTER SIX

INDOOR SCENERY

(89) Intermediate between outdoor and indoor scenery is that of the pergola, a shelter with foliage trained overhead, a delightful feature in countries which are blessed with the Mediterranean climate. The verandah is the next approach to the indoor scene. The roof provides shelter from rain and also protects the eye from glare. In the tropics the shelter from glare is more effective than in Europe, for the sun climbs quickly and remains high for the greater part of the day, casting a broad shadow from the roof. An interesting and attractive adaptation of the verandah to tropical conditions was made in bungalows erected on the Isthmus of Panama for the constructors of the great canal who came from the temperate climate of the United States. Screened with wire gauze as a protection against malarial mosquitoes, the broad verandah became a living-room. Its attractive appearance was increased by the collection of pieces of wood from trees in which orchids were rooted. These were hung from the roof of the verandah and the orchids dropped down their flowering sprays. Not least among the charms of these tropical verandahs was the nocturnal scene from those which faced across Culebra Cut, the Southern Cross being seen above the summit of Golden Hill, the crowning feature of the Isthmian Divide.

Southern nations do not favour roofed exteriors that are open to the public view, preferring sheltered enclosures for social reasons. Although the *patio* is less attractive in its prospect, it is especially attractive in aspect. In Mediterranean countries the passer by catches a glimpse of the sunlit enclosure, which is not wholly screened. The actual



STELLENBOSCH, CAPE COLONY





RHODES MEMORIAL, Cape Peninsula, Equestrian Statue *by* WATTS



TELFORD HOUSE DINING HALL

interior with sunlit court and shadowed colonnade can be seen and enjoyed in hotels by the traveller in sub-tropical and tropical towns, as those of the Canary Islands and Venezuela.

(90) As the outlook is better from a fully open than from a partly open window, the casement gives a better view than the sash, provided that it is of the full height of the window-frame. Landscape features surrounded by a window-frame differ in appearance from the same features viewed out of doors. If the observer stands close to the window the difference is slight, but from further back, at a distance two or three times as great as the diameter of the opening, the view is greatly improved, as the following example illustrates—namely, the view of pines and deciduous trees seen through an open casement of moderate size. The casement being narrow and relatively high, its shape suits the tree-form. The apparent height of the trees seen thus is nearly double that which they present when seen out of doors, an example of the fact that the subconscious mind accepts the field of attention as invariable, that is to say subtending a constant angle. The colours, moreover, are intensified, so that in two important respects the appearance of the trees is greatly enhanced. The intensification of colour is evidently due to the screening of the eye from side light, our vision being more pictorial when we are provided with blinkers.

Another attractive aspect of the window-view is that of the procession of clouds drifting across the opening. The case which I have particularly in mind is the view from a window seen sideways from the bed. On waking, and before rising, the clouds are better seen than during the active hours of the day, when our upright position cuts out the upper part of the dome of sky from the field of view. It is true that we may then, from curiosity, inspect the clouds above by assuming the recumbent position, but the impression of

purposeful observation has less effect upon the imagination than when the outlook is spontaneous.

To get a landscape view from the bed itself is, or should be, important to everyone, for year in, year out, it provides our first outlook on the new day. This being at the same hour, of true time, presents a picture of light and shadow with a six-month period of change; and the form and colour of the vegetation presents, in our latitude, the fourfold picture of spring, summer, autumn and winter.

(91) In the period of our Tudor dynasty when Gothic architecture had developed the style characterized as Perpendicular, the art of stained glass had attained such perfection that places of worship were designed so that pictures glorified by translucent colour should occupy the largest possible space of the surrounding walls. This development was carried so far that the weight of the roof had to be borne with the aid of flying buttresses supporting the narrow strips of masonry between the wide glass windows. In such perfect examples of the period as that of King's College Chapel, Cambridge, we see as near an approach to the Crystal Palace style of architecture as was possible before the time when iron and steel came into use for the construction of buildings.

It happened once when I was waiting in the stalls of King's College Chapel before the commencement of service, that the beautiful stained glass windows opposite seemed to be spread over so wide a field of view that I was unable to integrate the impression of their pictures. Then the organ voluntary began, and no sooner was the scene of sacred architecture glorified by sacred music than the faculty of sight became synoptic, and at last the windows were seen as one picture.

This is but one of many examples of the co-operation of senses in the æsthetic impression both of the outdoor and the indoor scene. Another instance may be cited from Exeter

Cathedral. When viewing the exterior, I found the detail of the towers difficult to integrate, but when the cathedral chimes sounded, the eye no longer wandered from point to point, but took all in with fixed and restful gaze.

(92) There are three modes of arranging objects in the field of view: the pictorial, in which a feature is ornamentally displayed on a broad background; the camouflaged, in which the proportions are so nearly equal that it is difficult to decide which is the outstanding part; and the arabesque, in which the pattern covers most of the field, and the untouched background is relatively so small that it is scarcely noticeable.

The arabesque attained its most important development in the mural decoration of Moslem architecture, both exterior and interior, largely as a result of the religious restriction on subjects of art. An outstanding example in western Europe is that of the Alhambra in southern Spain. Throughout the Moslem world, the lettering is of the Arabic type, which is made up of twists and dots and scrolls. Thus texts from the Koran can be woven into the mural patterns of the arabesque. In silver and other metal ware of the Middle East, especially of India, the covering of surfaces by the intricacies of a raised pattern carries on the arabesque method to the minor decorative arts.

(93) The screens between nave and chancel in the old English churches—for instance, in Norfolk and Devonshire—provide fine examples of wood carving. These are barriers of access, but not of visibility, the open work not obstructing the view from either side.

It is otherwise with the *mesbrebiya*, or wooden lattice-work for windows in the Moslem world. Their close carving presents a decorative pattern to the street but is not transparent from outside. For the occupier of the house, however, the apertures are sufficient to provide a window of outlook.

In the Far Eastern art of Japan highly coloured screens

of elaborate wood-carving are used for the upper part of dividing walls permitting the circulation of air, but not transparent from either side.

(94) Leonardo Da Vinci's mural painting of the Last Supper at the startling moment of the declaration of betrayal is best known from reproductions of early copies made before the original mural painting deteriorated. Engravings from the copies are often hung upon our walls. Few, if any, works of art have been more often dealt with descriptively and analytically, and in both methods of treatment attention has been concentrated on the figures, their grouping, and the character of the countenances. But the original, being a mural painting, commonly called a fresco, the task of Leonardo was not only to illustrate an episode in religious history, but also to decorate the refectory wall of the monastery of Sta. Maria delle Grazie in Milan.

The design of the picture, especially the background, in relation to its architectural setting is very striking. The fresco spans the breadth of the terminal wall of a very long room. The apartment in which the Saviour and his disciples are assembled is depicted in bold perspective, arranged so as to carry on the recessional lines of the refectory. Although the twelve apostles are seated at a long, narrow table, they are grouped in threes on either side of the central figure, in such a manner as to carry on the recessional effect. In spite of the dilapidation of the original, its appearance as a fresco in its proper setting makes it far more impressive than any copy hung as a framed picture. This notable example may suffice to illustrate the differentiation of mural paintings from portable pictures, and to emphasize their greater contribution to the harmonies of architecture. Anyone who takes the trouble to work out the geometry of the background of Leonardo's painting, especially in relation to the figure of our Lord as focus of the picture, will

find an illustration of the fact that Leonardo combined scientific with artistic ability, a rare combination of talents.

(95) The only domestic interiors which can compare in majesty with the vaulted nave of abbey or cathedral are the old dining halls with high-pitched roof of timber frame. These attained their finest development in the Perpendicular period, as in Westminster Hall, Hampton Court Palace, Christ Church College, Oxford, and the Middle Temple, London. Thus Royalty, universities inheriting from monastic times, and the ancient profession of the law, have maintained in these timbered halls the splendour of communal life.

In old days a common dining hall was a feature of manor houses, and the high-pitched roof was likewise an early, and even primitive, ceiling. Many beautiful examples of the high-pitched timber roof are still preserved in barns, particularly tithe-barns, such as that of Bradford-on-Avon in Wiltshire. Whether the workmanship be primitive as in a barn, or of elaborate design and skilled handiwork as in the hammer-beam roofs of the Temple and Hampton Court Palace, the spectator instinctively delights in the perspective of timber archways, corbels and curved braces, which leads the eye upwards in pyramidal convergence to the summit line.

(96) The apparent geometry of an English dwelling room is essentially a perspective of rectangles; floor, flat ceiling, doors, windows and, frequently, a projecting chimney. In most houses the shape and arrangement of these rectangles has been determined solely by practical considerations; but in the panelled rooms of the Queen Anne period, the whole surround is a grouping of rectangular forms designed in such perfect proportion that the effect has a restful charm which never palls.

(97) When the mansions of mediæval and Tudor England had been replaced by the elegant country mansions of the

talent was debarred from the representation of anything which might be regarded as an object of idolatry.

The oriental carpets in our English homes are not seen to the same advantage as in the countries of their origin. In our rooms the pattern of the carpet is cut up by the interfering forms of chairs and tables, beds and wardrobes. That the carpet is better displayed in the Eastern interior is shown by the following description of an apartment in a Turkish harem.¹

“At the lower end of each apartment are large closets for the reception of the bedding (for none are appropriated exclusively as sleeping chambers). . . . A low sofa or divan runs round the other three sides of the apartment . . . and the floor is invariably spread with soft and handsome carpets: as Byron wrote—

“‘Of workmanship so rare that made you wish
You could glide o’er them like a golden fish.’”

(99) Oriental carpets are surrounded by a border of different pattern which constitutes a frame for the main design. Flat objects placed upon a flat surface require a frame as a set-off from their background. Thus modern drawings and paintings which do not fill mural spaces, as did the earlier pictures, have to be framed. Small framed water colours hung upon patterned wall-papers require a broad, plain mount as an additional border. Now that the wall paper of living-rooms is often free from pattern, the broad mount is sometimes dispensed with.

When we consider three-dimensioned furnishings in relation to the background of the room, we note at once that the patterned chair-cover does not require a border, neither does the pattern of any vase of which the surface is a continuous curve. It is otherwise with the patterns of porcelain plates and dishes. Their flat surface provided the

¹ *The Beauties of the Bosphorus* (1813), by Miss Pardoe, pp. 125-6.

Chinese artists with a "canvas" for pictures, particularly landscapes, such as that of the willow-pattern plates, and the raised rim supplied a frame which was usually decorated with an encircling pattern.

(100) The lens of the camera has a fixed field of view, and so also, physiologically, has the human eye; but the field of conscious vision, which may be called the field of attention, varies greatly according to the character of the scene. When viewing features on the sky-line of the plain the field of attention is small, and those parts of the landscape which are near at hand escape attention. When the photographer, attracted by the distant prospect, has directed his camera to the horizon, he finds on developing the negative that the distant parts appear insignificant and are dwarfed by the nearer part of the landscape. When the angle of a quarter-plate camera is about forty degrees horizontal and thirty vertical, and the camera is held in the usual position, the ground-line comes within a few yards of the photographer. The general practice of the painter when dealing with the distance of a lowland landscape is to restrict the length of his horizon to a much smaller angle than forty degrees. Whatever be the actual angle delineated by the artist, it is customary to view the picture when hung upon the wall from a distance three times as great as its diameter, the angle occupied by the picture when so viewed being only about eighteen degrees.

When we visit Alpine resorts situated at the foot of great mountains, the constructive features of the sky-line occupy so large an angle that they are suitable for the field of view of the camera, whether held horizontally for a group or vertically for a single peak. It happens, moreover, that no great school of painters has specialized in the scenery of high mountains, and so enlarged photographs, not drawings or paintings, are the pictures which the devotee of mountaineering usually hangs upon his walls. The practice

of enlarging photographs originated in order to make the picture big enough to view thus instead of in the pages of an album or book, but, apart from this practical advantage, the enlargement to a diameter of feet instead of inches imparts an artistic quality to the mountain photograph which it did not possess in the ordinary print. The amount of detail recorded by a good lens in the clear air of Alpine heights is so great that the contact print is over-crowded, and therefore unattractive. The clear negative can, however, be enlarged to a hundred times its original area without adding anything formerly invisible and without blurring the clear outlines which are distinctive of the Alpine atmosphere. Thus we can obtain, by mechanical means, a monochrome which satisfies the artistic sense.

(101) Picture decoration of Japanese interiors is planned on an entirely different principle from that adopted in the English home. Upon our walls any convenient space may be occupied by a picture, and these pictures, whether many or few, are permanent decorations. The Japanese sitting-room has an alcove set apart for pictorial decoration. A single picture, dependent from a roller, is hung there. Upon this attention inevitably concentrates, for all the rest of the wall has a plain surface. Monotony is avoided not by simultaneous display of many pictures but by frequent replacement of the picture chosen for exhibition, that which is removed being rolled up and stored with a host of others kept in reserve.

Vases and flowers are also placed in an alcove, thus continuing the principle of the broad, plain background as offset for an object of interest and beauty.

(102) English silver vessels up to early Georgian times were of elegant form and usually with a plain surface. In late Georgian and early Victorian times embossed surfaces came into fashion. The charm of the early English silver is not only due to the beauty of the uninterrupted curves, but

also to patterns of reflection which are modelled by these curves. Visual patterns are of two kinds, material and optical. Every polished or glazed surface, as, for instance, of wood or porcelain, shows a pattern of reflection, but polished metal is pre-eminent in this effect. Although we are accustomed to speak of an ordinary mirror as a "looking-glass," the glass is merely a transparent, protective covering of the reflecting silver surface.

The reflection of a plain mirror calls for no comment, but the picture presented by the convex mirrors, which, of large size and in circular gold frame, were fashionable within living memory, is of a particular kind of beauty which requires explanation. The field of reflection is large, and most of the apartment is pictured in such a mirror hung upon the wall. The charm of the picture is not merely that of reproduction in miniature but is mainly due to enhancement of colour and colour-contrast. This is not in any way attributable to specially good silvering at the back; indeed the colourful picture is still seen in old mirrors which have not been re-silvered for many a long year. The intensification of colouring is in fact subjective, being due to the juxtaposition consequent on miniature scale. Herein lies the secret of the convex mirror as an embellishment of the living-room.

(103) When decorative objects of the arts and crafts are no longer required for use, for instance, the hour-glass, patch-box, or Japanese *netsuke* (the knob or large button from which a tobacco pouch was hung), they are treated as mere ornaments, being put in a glass-fronted cupboard or glass-topped table, or placed on a mantelpiece or other shelf.

The customary arrangement of ornaments on a shelf provides a lesson in the æsthetics of symmetry. According to length of shelf or number of articles, we have the pair, the triad and the pentad. The triad has a dominant central feature with one of a pair of lesser magnitude on either side, the pentad similarly a dominant central feature with two

objects on either side, each belonging to a different pair.

(104) Flowers in their outdoor surroundings have a natural background of sufficient similarity to exercise some of the blending effect to which the term "camouflage" is applied. The most notable exceptions are the blossoms of pink or white colour on bare boughs seen against the uniform, contrasting background of blue sky. Flowers in the dwelling-room are likewise displayed by a contrasting background, of which the forms are more regular and more massive. Again, flowers such as hyacinth and daffodil, which when growing out of doors we look at down below, are better displayed in a vase or bowl upon the table where they are level with the eye. The window lighting of interiors brings out the translucence of flowers more strongly than the general illumination of the outdoor scene. It is, however, largely owing to delicacy of texture that flowers give the finishing touch to indoor decoration, for without them furniture looks "heavy."

Among the minor features of Nature, crystals, agates and shells of present and fossil species have individual beauty, but their mode of occurrence seldom offsets their appearance. Thus it is generally in the mineral collection that their charm is best appreciated. In this, as in so many matters of taste, we owe much to the teaching and example of Ruskin.

(105) When we recall for how many hours our field of vision is occupied by the printed page, the importance of its appearance cannot be ignored.

In all lettering of European types, the breadth of stroke is so much less than the height that the reduction of the latter cannot be accompanied indefinitely by reduction of breadth, which is limited by the requirement of clear visibility. Thus it is only on large pages that print can be in letters of slender elegance. Of these, the finest examples are in early printed works, the *incunabula*, which retained the artistic tradition of manuscript times.

The appearance of the printed page in modern books, which are mostly octavo, depends in the first place upon adequate size of print and, in the second place, upon the proper proportioning of black and white, i.e. the spacing between words and lines, the proportion between text and margins, and the relation of the four marginal spaces to one another.

In architectural inscriptions, there is no such severe restriction of the shape of letters as on a small printed page, yet the slender elegance of inscriptions seen on old tombstones has, unfortunately, gone out of fashion. This may be from a habit of following the shape of letters in the printed page.

Of inscriptions in other type than Roman, the most beautiful to be seen in England are of the Lombardic script, of which a fine example is that which encircles the cloistered garth of Winchester College, erected in memory of Wykehamists who fell in the War of 1914-18. The walls are lined with flint in which are embedded the Lombardic letters, each cut out from a block of white stone.

(106) The engraving of coins is sculpture in miniature, and there is no better illustration of sculptural art throughout the ages than that provided by a cabinet of coins.

St. George slaying the dragon is shown on the gold noble of Henry VIII. This typifies the victory of good over evil, for throughout the Middle East and Europe, although not in the Far East, the dragon has been the symbol of evil both in pagan and Christian times. The adoption of St. George as our patron saint appears to originate from the Crusades, when a victory was won near a church dedicated to St. George at Lydda near Joppa. It is said that in pagan times the neighbourhood was a centre for the worship of Perseus, slayer of the dragon and prototype of St. George. That the tradition extends yet further east is shown by the Persian tale of Rustam and the dragon.

On the gold noble of Henry VIII, St. George is a knight in armour, slaying the dragon with a lance. This symbolic picture was repeated on our coinage in the reign of George IV, long after fashion in art had reverted from the mediæval to the classic style. In the new design by Pistrucci, maintained since then on the silver five-shilling piece and golden sovereign, the horse is modelled on those of the Parthenon sculptures, which had recently been brought to England. The knight, no longer in armour, but unclothed, was copied from a living model resembling the type of ancient Greeks, his weapon not a lance, but short sword. The whole composition is admirably adapted to the circular frame of a numismatic picture.

The figure of Britannia is not represented on Plantagenet or Tudor coins, but appears in the reign of Charles II when the fashion for classic art had begun. Britannia, as personification of Britain and the British people, has for generations past taken precedence of St. George, the patron saint, in both poetry and song. It seems that we derive this aid to patriotism from the idealism of the ancient Romans, for Britannia as a female figure typifying Britain appears on the coins of Hadrian and Antoninus Pius.

On the reverse of copper coins in the reign of Charles II, the seated figure of Britannia, modelled from a reigning beauty, faces to the left. This design remained with little alteration throughout seven reigns. Then, in the time of George IV, a new design, facing right and helmeted in classic style, carried the type back to earlier days. This figure, which remains upon the coinage of to-day, appears in the cartoons of many publications in times of national stress or triumph.

THE END

INDEX

- 3, River, 53
 2, 78, 80
 xandria, 80
 ambra, 115
 8, 45
 air, 30
 tares, 30, 32
 uila, 32
 turus, 30 45
 30, 32
 hdown Forest, 102
 hens, 73
 rora, 34
 vre Point, 58
 e, River, 53
- TH, 75
 thurst, 88
 yswater, 77
 atenbucht, 53
 lle Isle Straits, 47
 rgen, 84
 rlin, 94
 rn, 23, 43
 scay, Bay of, 41
 adford-on-Avon, 117
 istol Channel, 18
 itish Columbia, 51
 ittany, 36
 ienos Ayres, 89
 tterwick, West, 58
 xton, 75
 yzantium (*vide* Constantinople).
- AIRO, 78, 79
 ambridge, 95, 114
 ampagna, 74, 81
 anopus, 27, 32
 apella, 28
 assiopoia, 32
 attaro, Gulf, 102
 entaurus, 32, 33
 hevots, The, 77
 hillon, 101
 olombo, 88
- Colorado Canyon, 35
 (note)
 Comet of 1882, 34
 Constantinople (or Byzantium, now known as Istambul), 77, 80
 Copenhagen, 94
 Corfu, 102
 Cornwall, 36
 Cotswolds, 105, 106
- DAKAR, 63, 88
 Danzig, 85, 87
 Derbyshire, 49
 Devon, 18, 35, 36, 58, 107, 115
 Dovedale, 49
 Drummond, 64
 Durban, 64
- ECLIPSE OF THE SUN, 24
 Eden, Garden of, 31
 Edinburgh, 101
 Eiger, 43, 44, 45, 54
 Ely, 48
 English Channel, 35, 36
 Exeter, 93
- FAULHORN, 44
 Fiescherhorn, 45
 Finsteraarhorn, 43, 44, 45
 Florence, 79, 93
 Fomalhaut, 31
 Fountains Abbey, Yorkshire, 101
 Freetown, 63
- GIZEH, 73
 Glacier House, 51
 Glasgow, 54
 Glen Affric, 49
 Glenridding, 55
 Glion, 50, 53
 Gold Coast, 63
 Great Bear (Ursa Major), 29, 32
 Greenland, 48
- Greenwich, 79
 Grindelwald, 23, 44, 45, 101, 104
 Groote Schuur, 88
 Gunten, 53
- HAMBURG, 94
 Hammerfest, 86
 Hampstead, 79
 Hangchow, 59
 Haslemere, 102
 Highlands, West, Scotland, 71
 Humber Estuary, 59
- INTERLAKEN, 45, 53
- "JACOB'S FLOCK," 17
 Jan Mayen, 24
 Jenolan caves, 49
 Jerusalem, 74
 Johannesburg, 64
 Jungfrau, 43, 45, 54
- KAMAKURA, 95
 Kew Gardens, 64
 Kleine Scheidegg, 45
 Kyoto, 62
- LAKE BRIENZ, 53
 Derwentwater, 55
 Gatun, 108
 Geneva, 50, 52, 53
 Lomond, 54
 Maggiore, 102, 108
 Mälär, 85, 94
 Ontario, 57
 Superior, 52
 Thun, 53
 Ullswater, 55
 Windermere, 54
- Land's End, 35
 Leo, 29, 30, 31, 32
 Les Avants, 50
 Lingüinea Plain, 66
 Liverpool, 47
 Lombardy, 46

- London, 74, 75, 79, 81,
 82, 93, 98, 99, 117
 Lötschenthal, 44
 Lydda, near Joppa, 125

 MAGDALENA, River, 66
 Manitoba, 51
 Matterhorn, 45, 46
 Menton, 37
 Middlesbrough, 40
 Milan, 46, 116
 Milky Way, 29, 30, 31,
 32, 33
 Minneapolis, 57
 Mississippi, River, 57
 Mönch, 43, 45, 54
 Mont Blanc, 46
 Montego Bay, 66
 Monte Rosa, 46
 Monte Viso, 46
 Montreal, 89
 Montreux, 50, 52, 53, 54
 Moon, 27, 28, 56

 NAPLES, 40
 Neuchatel, 18
 Newnham-on-Severn, 58
 New York, 88, 89
 New Zealand, 38
 Niagara, 56
 Nikko, 91
 Nile, River, 49, 105, 111
 Norfolk, 115
 Norway, 38, 84
 Norwich, 83, 87

 OBERHOFEN, 53
 Ocean, Pacific, 51
 Southern, 42
 Orion, 29, 32, 34
 Ortler, 46
 Oslo, 84, 85
 Oxford, 96, 117

 PÆSTUM, 73

 Panama, 66, 107
 Paris, 89
 Pe-chih-li, Gulf, 76
 Pietermaritzburg, 64
 Pegasus, 31, 32
 Petitcodiac, River, 59
 Pleiades, 28, 29
 Pole Star, 28
 Pompeii, 76
 Port of Spain, Trinidad,
 65
 Pretoria, 64, 88
 Procyon, 29
 Purbeck Island, 35

 QUEBEC, 31, 47, 83
 Queensferry, 83

 RAINBOW, 21
 Regulus, 30
 Reykjavik, 94
 Rhone, River, 53, 62
 Richmond Hill, 57
 Rifflalp, 45, 67
 Riviera, 34, 37, 62, 67
 Rome, 73, 74, 75, 79, 81
 Russia, 78

 SAGITTARIUS, 30, 32
 St. Andrew's Cross, 27
 George's Cross, 27
 Gotthard, 46
 Marta Mountains, 66
 Paul City, 57, 100
 Salisbury, 83
 Savoy Alps, 52
 Schreckhorn, 43, 54
 Schwarzegg Club Hut,
 45
 Scorpio, 10
 Seine, River, 59
 Selkirk Mountains, 51
 Severn, River, 58
 Sierra Leone, 63
 Simplon, 46

 Sinai, 49
 Singapore, 65
 Sirius, 27, 29, 32
 Snowdon, 24
 Solway Firth, 76, 77
 Sonning-on-Thames, 81
 Southern Cross, 32, 33
 112
 Spica, 30
 Spitsbergen, 46, 47
 Staffordshire, 49
 Stockholm, 85, 86
 Suffolk, 106
 Switzerland, 43, 46, 53
 Sydney, 83

 TAKORADI, 63
 Teneriffe, 39, 40
 Thames, River, 57, 82
 Thebes, Egypt, 73
 Topsham, 87
 Toronto, 100
 Trent, River, 58
 Tsien-Tang Estuary, 59

 UPSALA, 85

 VEGA, 28
 Venezuela, 113
 Venice, 78, 85, 97, 98
 Venus, planet, 22, 26, 27
 Vesuvius, 40, 101
 Vevey, 52, 54
 Virgo, 29

 WALES, 18
 Washington, 74, 79, 100
 Wengen, 51
 Westminster, 82, 89
 Wetterhorn, 23, 43, 101
 Winchester, 125
 Wight, Isle of, 35
 Windsor Great Park, 67

 ZERMATT, 45, 46, 67

